

MAY 22, 1937

MAY 24 1937

Railway Age

Founded in 1856

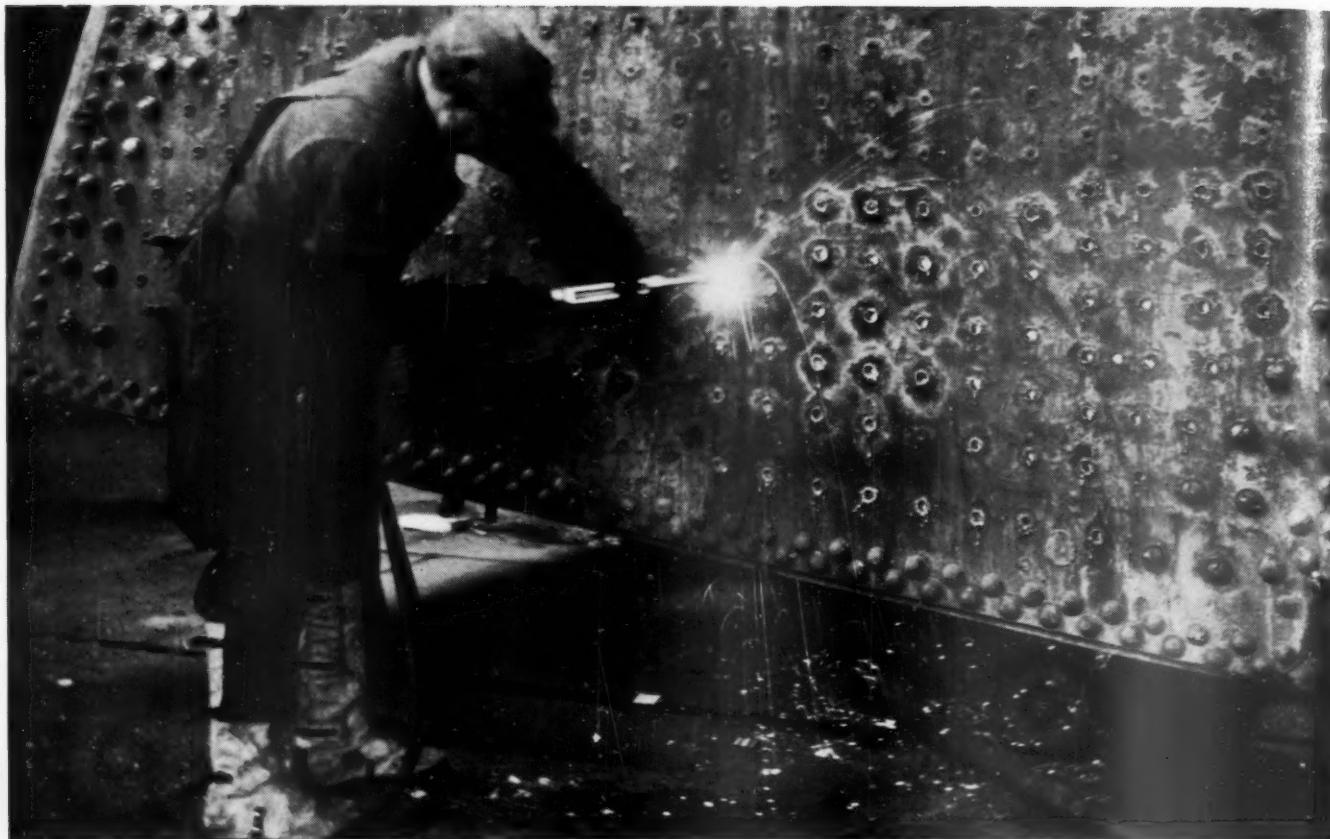
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1912-1937

A QUARTER OF A CENTURY OF SERVICE
TO THE MAJORITY OF CLASS I RAILROADS

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Vol. 102

May 22, 1937

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 Engineering Index Service*



April 3, 1937

RAILWAY AGE

1937

RAILWAY AGE

Let's keep the throttle open!

We Agree With You, A.A.R.!

ONE of the brightest records of 1936 was the progress of railroads toward recovery.

Freight tonnage registered a notable advance. Passenger travel stepped ahead. Railroad purchases of new equipment were greater. Employment increased. Payrolls increased.

In part, credit for this improvement goes to the upswing of general business conditions.

But in part this advance of the
railroads comes as the reward of
hard work and resourcefulness of
themselves—their deter-

creased freight with faster schedules, and such special services as collection and delivery of less-than-carload shipments. They attracted greater passenger traffic with faster schedules, courteous service, a steady improvement in comfort, as well as lower rates.

From these betterments in service and economies in operation every one benefits — the railroads, railroad employes, travelers and ship- pers, other industry — the public at large. For prosperous railroads mean a prosperous nation.

One hundred thousand railroad men have been put back to work within the past twelve months, with the average earnings per hour of

railroad employees at their all-time peak.

Thoughtful Americans must welcome these signs of recovery after so many lean years. To insure the continuance of this progress they will study carefully all proposals affecting transportation—supporting those which give the railroads freedom to meet competition on an equal basis—discouraging those which will add to the cost of rail operation, impair the standard of service or reduce efficiency.

Let's give increasing business
chance to bring more jobs, as well
as better service and fair earnings.
Let's keep the throttle open!

Let's keep the throttle open!

And we will go on pioneering with our continuous research and engineering to produce signal systems that provide increased safety, efficiency and decreased operating costs of train operation. Signaling is particularly essential in these days of high-speed transportation. It is an important factor in the achievement of the existing accelerated service with safety and low operating costs.

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ST-
too!

ST-
too!

ASSOCIATION OF
AMERICAN RAILROAD

1881

Union Switch & Signal Co.

1937

SWISSVALE, PA.

NEW YORK

MONTREAL

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RAILWAY AGE

How the Railways Are Doing

The statistics in the accompanying table show how the railways are doing. They also throw light on why they are doing as well as they are.

The most creditable and remarkable comparison is between the operating ratios in the first quarters of 1929 and 1937. Both total operating revenues (gross earnings) and operating expenses in the first quarter of 1937 were 30.4 per cent less than in the first quarter of 1929; and in consequence the ratio of operating expenses to total operating revenues actually was slightly

as compared with a decline in net operating income of 43.6 per cent.

The figures for the first quarters of 1933 and 1937 indicate the measure of railway recovery that has occurred since the banking crisis in the former. Gross earnings increased 57 per cent and operating expenses only 44.5 per cent, resulting in an increase in net operating income from the lowest level reached in the depression of 323.4 per cent. The increase of 359 per cent in purchases from the manufacturing industry

Class I Railways, United States—First Quarters 1929, 1933, 1936 and 1937

	1929	1933	1936	1937	Per Cent Increase or Decrease 1937 compared with		
					1929	1933	1936
Car Loadings	12,153,528	6,249,295	7,907,214	9,098,639	-25.1	+45.6	+15.1
Operating Revenues	\$1,481,224,502	\$656,811,458	\$907,746,828	\$1,031,424,198	-30.4	+57.0	+13.6
Operating Expenses	\$1,098,060,343	\$528,738,223	\$704,163,110	\$764,082,380	-30.4	+44.5	+8.5
Operating Ratio	74.13%	80.50%	77.57%	74.08%			
Taxes	\$95,577,395	\$65,191,952	\$68,760,721	\$88,917,811	-7.0	+36.4	+29.3
Net Railway Operating Income	\$259,323,784	\$34,524,306	\$104,443,348	\$146,174,646	-43.6	+323.4	+40.0
Rate of Return	5.35%	0.68%	2.09%	2.93%			
Purchases from Manufacturers	\$389,111,000	\$55,132,000	\$125,725,000	\$253,117,000	-35.0	+359.9	+101.0
Employees—Average	1,586,066	935,809	1,011,760	1,091,990	-31.2	+16.7	+7.9

lower, being 74.13 per cent in 1929 and 74.08 per cent in 1937. It is doubtful if any other large industry can make a comparable showing of having curtailed its operating expenses in direct proportion to a large decline of gross earnings.

Earnings, Employment and Purchases

As, however, the reductions of gross earnings and operating expenses were relatively exactly the same, and as the reduction of taxes was only 7 per cent, the amount of net operating income earned in the first quarter of 1937 was still 43.6 per cent less than in the first quarter of 1929, being \$259,324,000 in the former year and only \$146,175,000 in the latter.

The *Railway Age* often has emphasized how directly gross earnings determine the railway pay roll, and in consequence, on any given basis of wages, the number of persons employed. The figures for 1929 and 1937 in the table again illustrate this. With average hourly wages slightly higher than in 1929, the number of employees in the first quarter of this year was 31.2 per cent less than in the first quarter of 1929—a decline almost in proportion to the decline in gross earnings.

This paper also has often emphasized how net operating income controls the volume of purchases from the manufacturing industry. Such purchases in the first quarter of 1937 were 35 per cent less than in 1929

between the same periods affords another significant illustration of how closely net operating income controls purchases.

Progress—But Not Recovery

Car loadings in the first quarter of 1937 increased 15.1 per cent over 1936, gross earnings 13.6 per cent and operating expenses only 8½ per cent, resulting in an increase of 40 per cent in net operating income. The much more than proportionate increase from \$126,000,000 to \$253,000,000, or over 100 per cent, in purchases from the manufacturing industry indicates the almost unprecedented efforts the railways are now making to acquire enough equipment and otherwise put their properties into condition to handle satisfactorily an increasing traffic, and especially to cope with this year's peak of freight traffic when it is reached next fall.

On the whole, the statistics show that railway management has done a remarkably good job in effecting the retrenchments necessitated by the terrific decline of traffic and earnings during the depression, and in taking advantage of the increases of traffic and earnings that have occurred since the bottom was reached. They also show, however, that for the railways the depression is not ended. An industry with gross earnings 30½ per cent less, and net operating income almost

44 per cent less, than in 1929 is still far from having recovered.

In view of this fact, and of the gallant efforts the industry is making to so utilize its increasing earnings as to provide more employment and, by expenditures for equipment and materials now running far ahead of the increases in its net earnings to restore its facilities in order to meet demands for service, the railways are surely entitled to freedom from political attacks which would seriously interfere with what they are accomplishing and trying to accomplish in the public interest.

But they are not free from such attacks. Their efforts to secure passage of the Pettengill long-and-short-haul bill to enable them to compete more nearly on terms of equality with other carriers are being strongly opposed by selfish interests identified with these other carriers that are not subject to similar restrictive legislation and also by certain narrowly selfish political and sectional interests. At the same time, they are confronted with demands for advances in wages and for legislation affecting the wages and working conditions of their employees which would greatly increase their operating expenses and reduce their net operating income. This reduction of their net operating income would render it impossible for them to continue their current large purchases, which are providing largely increased employment in the manufacturing industry and are necessary to enable them to assure adequate and satisfactory service to the shipping and traveling public.

If there is any industry, which, in view of its record and the conditions and problems with which it is confronted, is entitled at present to have no more government interference with it unless to help it increase its net earnings and stimulate its program of rehabilitation, it is the railroad industry.

How About Safety Records?

American railroads are proud of the safety records they have made. For the first time, a railroad officer recently headed the National Safety Council for two consecutive terms. Every spring the E. H. Harriman Memorial Awards and the results of the Railroad

Employees' National Safety Contest are looked forward to with keen interest.

Certain tendencies, however, have apparently developed during the past year or two which are disconcerting, to say the least. Traffic has increased in volume and the number of railroad employees has grown steadily. This is fine, but in the effort to speed up production there has been a tendency to overlook safety considerations. The director of the Bureau of Safety of the Interstate Commerce Commission commented upon this in his recent report, in these words: "During the first six months of 1936, there were seven passengers, eight travelers not on trains and 305 employees on duty killed in railroad accidents, and these figures and other data in the reports submitted by the railroads to the Commission's Bureau of Statistics indicate that there is at present a decided upward trend in the number of railroad accidents and casualties resulting therefrom."

Parallel conditions will be found in many industrial plants. One railroad representative excuses lax practices with the statement that business must be kept moving and that it was necessary in some instances drastically to limit the time allotted for freight train inspection. Is this necessary? Is time really saved? Yes, in some instances, but a wreck or breakdown on the road will cause a much greater loss of time on the part of the disabled train and may, and often does, delay other important trains.

Is money saved by skimping inspection and repairs? Possibly, but this is extremely doubtful, particularly when we take into consideration the disturbances in the operating department when resulting delays occur, and the effect of these on the patrons and the traffic department. Then, too, when avoidable accidents do occur, the cost of damage to persons and lading, and to facilities and equipment, mounts up at a rapid rate.

The railroads' records for safety in recent years have become a real asset in competition with other types of transportation. Indeed, these records have been made a basis for much of the advertising done under the direction of the Association of American Railroads. Undoubtedly, also, these splendid safety records have been accompanied by greatly increased efficiency and more economical operation. Such an asset should be jealously guarded.

A British Tribute to American Train Speeds

The lead now being given by American railroads in speed is made clear by the fact that the world's fastest runs with steam haulage, Diesel haulage, and electric haulage, are all made on American metals; that the Pennsylvania Railroad has a greater daily mileage of runs scheduled at 60 m.p.h. and over than any other railway in the world, and that, if high speed be proportioned to route mileage, it is the electrically-operated Chicago, North Shore & Milwaukee—an interurban line between the cities of Chicago and Milwaukee that is, in a sense, little more

than a tramway—that heads the list. And yet the tremendous advance in speed on the railways of the United States is being achieved without the slightest sacrifice of safety; on the contrary, the railways of the United States, notwithstanding the enormous area of the country that they serve, and the unexpected happenings to which Nature's climatic extremes may at any time subject them, in 1935 for the first time claimed the wonderful record of operating for an entire year without losing the life of a single passenger as the result of a railway collision or derailment.

—From the *Railway Gazette* (London), April 3, 1937.

Santa Fe Re-equips "Super Chief"

Stainless steel train, built by Budd, is hauled by Electro-Motive 3,600-hp. Diesel locomotive

COMplete new equipment for the Super Chief train, operated by the Atchison, Topeka & Santa Fe on a 39¾-hr. schedule between Chicago and Los Angeles, Cal., includes nine streamline light-weight cars, built of stainless steel by the Edward G. Budd Manufacturing Company and one new 3,600-hp. Diesel locomotive built by the Electro-Motive Corporation, LaGrange, Ill. This new equipment was placed in regular operation on May 18, after several weeks of demonstration runs and break-in service.

The Locomotive

The 3,600-hp. streamline Diesel locomotive, is composed of two 1,800-hp. units, coupled for multiple-unit operation from a single control station in the cab of the leading unit. The motive power for the 1,800-hp. units, generally referred to as the *A* and *B* units, is identical and consists of two 900-hp. Diesel-electric power plants, controlled simultaneously from the main locomotive throttle. The length over coupler pulling faces of the *A* unit is 71 ft. 4¾ in. and the *B* unit, 69 ft. 8 in.

The total weight of the locomotive, with full supply of fuel, water and sand, approximates 568,000 lb., this weight consisting of 284,400 lb. for the *A* unit, and 283,600 lb. for the *B* unit. These weights are again divided between the two 6-wheel trucks of each locomotive unit, and further proportioned to the two driving and single idle axles of each truck. This distribution provides an average wheel loading at the rail of 22,500 lb. for the idle axle, and 23,400 lb. for the drivers.

The locomotive unit bodies are constructed with side frames in the form of a modified Howe truss designed to carry the entire body weight. The underframe consists of cross-members running from side to side, which support the machinery. The upper members of the side frames are tied together with a turtle back roof. Center

sills are in effect continuous to take care of buff and drag, and end posts are approximately in line with the center sills. The majority of the connections are welded, although riveted construction is used where necessary. Welded bolsters and cross-bearers are stress relieved before being assembled in place. The body design is based on meeting the Railway Mail Service requirements in every respect for self-propelled cars in the class requiring 400,000 lb. buff.

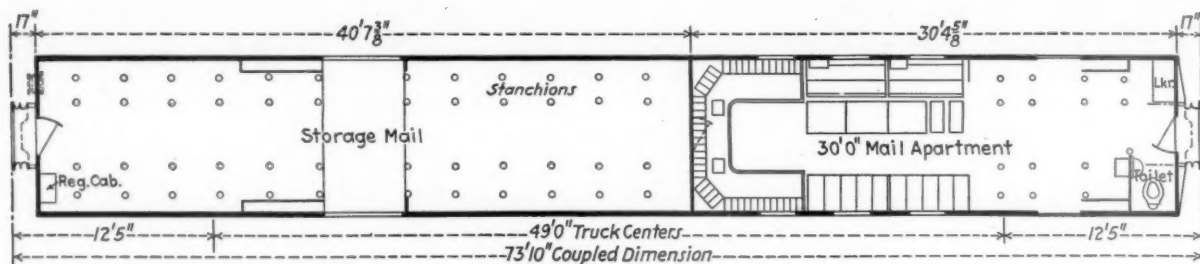
As the outside finish is not intended to assist in supporting the car body, it is designed and applied so as to prevent buckling. It consists of ¾-in. Plymetl panels, made of plywood completely covered front and back with stainless steel which is soldered at the edges. This finish is applied to the car body without bolt holes through the panels, thus preventing moisture from entering and insuring indefinite panel life. The entire steel structure, where panels are applied, is covered with asphalt-impregnated canvas so that the slight motion which may occur due to deflections will not cause the steel members to wear through the metal covering of the panels. The panels are properly spaced and held in position by the use of longitudinal and vertical battens riveted to the framing structure.

All truck assemblies are interchangeable, weigh approximately 48,000 lb., and have a 14-ft. 1-in. rigid wheelbase. The Commonwealth truck frame and swing bolster are of alloy cast steel, while the spring planks are of stress-relieved welded construction. Edgewater rolled-steel wheels, 36 in. in diameter, are mounted on three AREA E-11-X axles having equivalent to 6-in. by 11-in. journals. A maximum journal load of 21,600 lb. is carried on double-row SKF roller bearings of the latest design.

Improved riding qualities and greater stability in negotiating curves at high speeds have been obtained by a new treatment of load suspension. The truck frame is supported on its equalizers at four points by twin group



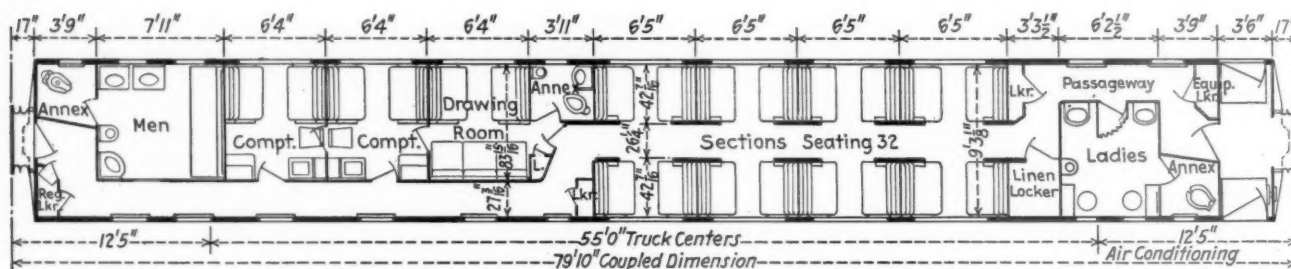
Newly Equipped "Super Chief" of the Atchison, Topeka & Santa Fe



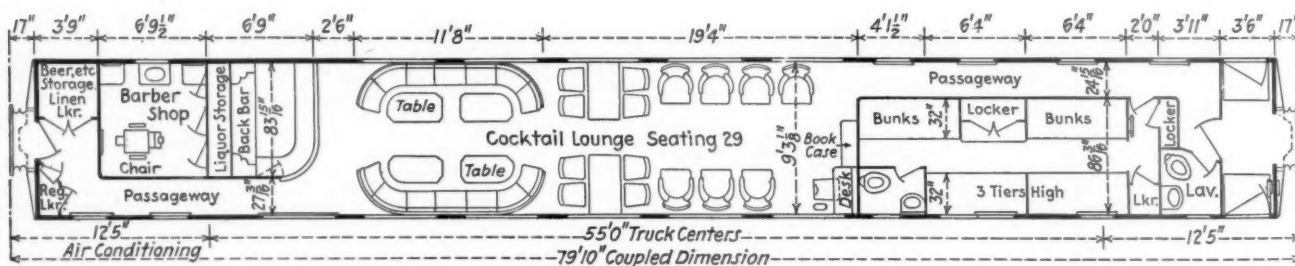
Postal Car No. 3400



Storage-Mail and Baggage Car No. 3430



Floor Plan of the Sleeping Cars "Isleta" and "Laguna"



The Cocktail Lounge Car "Acoma"

coil springs of silico-manganese steel. The bolster is supported at each corner by a pair of chrome-vanadium elliptic springs. These springs ride on two spring planks, which in turn are carried by swing hangers pivoted from the outside of the truck frame. Lateral oscillations of the bolster are dampened by four hydraulic shock absorbers which also act to ease the body load against the truck frame when entering or leaving curves.

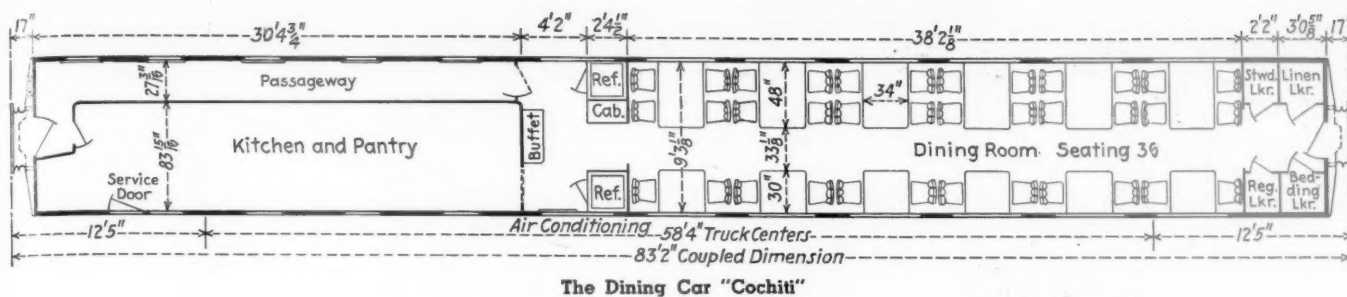
Each truck has two General Electric traction motors geared directly to the outer axles, and carried in conventional manner between the driven axle and the truck-transoms. The center axle is idle and necessary for load-carrying purposes only. Clean, dry air is forced to the motors by blowers located in the car body directly above each center plate. This air is directed to the motors through cast openings in the bolster and body center plates and from the bolster to the hollow truck transoms through matched openings in each. The passages between the swing bolster and transom sections are sealed by a Fabreeka gasket and manganese steel wear plate arrangement. From the transom, the air passes

to the motors through flexible rubber ducts permanently fastened to the motor and transom openings.

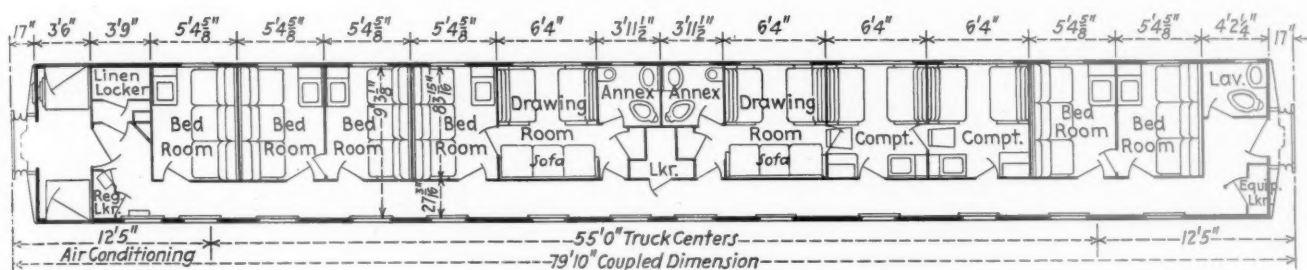
Braking effort is supplied by Simplex unit-cylinder clasp brakes, with two standard 13 3/4-in. shoes per wheel and four 10-in. by 10-in. cylinders per truck, fitted with automatic slack adjusters. With 100 lb. air pressure per cylinder, the available retardation force approximates 150 per cent of the locomotive light weight. Automatic and manual sanding is provided at the leading wheels of each truck of the A unit.

Although the second or B unit of the locomotive is equipped for independent operation in yard movements such as turntable maneuvers, the locomotive main throttle is located at the control station of the operator's cab located just back of the wind-break nose construction of the leading unit. The streamline contour of the head end is designed to effect a minimum wind resistance at high speeds and at the same time to provide maximum visibility for the operator.

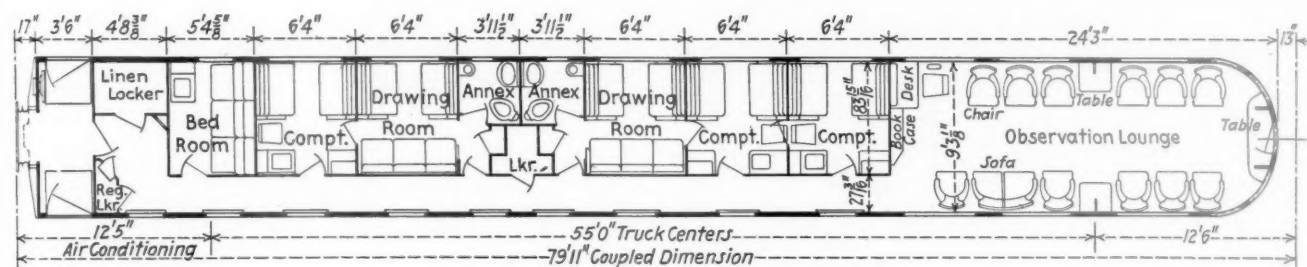
Seated in a deeply upholstered adjustable seat, the operator has a clear vision of both sides of the track



The Dining Car "Cochiti"



Floor Plan of the Sleeping Cars "Oraibi" and "Taos"



The Compartment-Observation Car "Navajo"

ahead through slanting automotive style windshields of 9/16-in. safety glass, equipped with patented windshield wiper and hot-air defroster arrangement. The cab side windows are likewise of the automotive type of safety glass with no-draft ventilators and adjustable side windows.

The operator's instrument panel provides for indirect illumination of an indicating speedometer, and the cus-

a comfortable seat on the left side of the cab and this station is also served by a windshield wiper, defrosting device and no-draft ventilation.

Locomotive movements have been simplified to the use of three levers: the locomotive main throttle, reverse lever, and air brake handle. With the engines idling and the reverse lever in running position, any movement of the locomotive throttle is relayed electrically through four control trunk wires to each power plant of the locomotive. These telegraphic impulses are received by an electro-pneumatic device which actuates the local engine-speed governor lever to increase or decrease engine speed and thus control the individual power-plant output.

At the head of each engine is a local control station, from which the attendant may check the operating condition of each power plant. This local control station comprises individual fuel and lubricating oil gages, an indicator, a 12-point exhaust pyrometer and an engine water thermometer. It also includes engine start-and-stop buttons and an isolation switch having two positions, on and off. Moving the switch handle to the off position opens all electrical control circuits to that power plant and reduces the engine speed to idle, irrespective of the operation of the remaining power plants. Returning the switch to the on position closes the control circuits, and the engine immediately responds to the power demand being called for by the position of the locomotive throttle.

In addition to the indicating instruments at each control station, the locomotive is equipped with a trunk-line alarm system, whereby a dangerous engine condition is brought to the attention of the attendant by an audible as well as visual alarm. This system includes, engine water-temperature and oil-pressure switches, an 8-in.

Consist of the A.T. & S.F. "Super Chief"

Name or number of car	Type of Car	Length		Between truck centers, ft. in.	
		Coupled ft. in.	in.		
3400	Mail; storage; 30-ft. postoffice . . .	73	10	49	0
3430	Mail; storage; baggage	79	10	55	0
Isleta	Sections; compartments; drawing room	79	10	55	0
Laguna	Sections; compartments; drawing rooms	79	10	55	0
Acoma	Bar; lounge; barber shop; crew . .	79	10	55	0
Cochiti	Diner	83	2	58	4
Oraibi	Bedrooms; compartments; drawing rooms	79	10	55	0
Taos	Bedrooms; compartments; drawing rooms	79	10	55	0
Navajo	Bedrooms; compartments; drawing rooms	79	11	55	0
Overall length		715	11		

NOTE: The cars have accommodations for 32 in section sleepers; 26 in bedrooms; 22 in compartments; 24 in drawing rooms; and a total of 78 in the diner and the lounges. There are also sleeping quarters for a crew of 12.

tomy air gages indicating brake and A.T.C. control functions. At the right of these instruments is a wheel-slip indicator, which flashes a warning through a red lens when any pair of driving wheels slips. There is also



The Dining Car at Night—The Lighting Includes Both Center and Side Fixtures

electric gong, and four illuminated enunciator signals in each locomotive unit. The enunciator boxes have three different colored lenses corresponding to hot engine, low oil pressure, and boiler failure. The alarm gong rings with the illumination of any of the three signals and con-

tinues until the failure has been located and acknowledged by placing the isolation switch handle in off position. This same gong is utilized as a call signal for the attendant by use of a push button in the operator's cab.

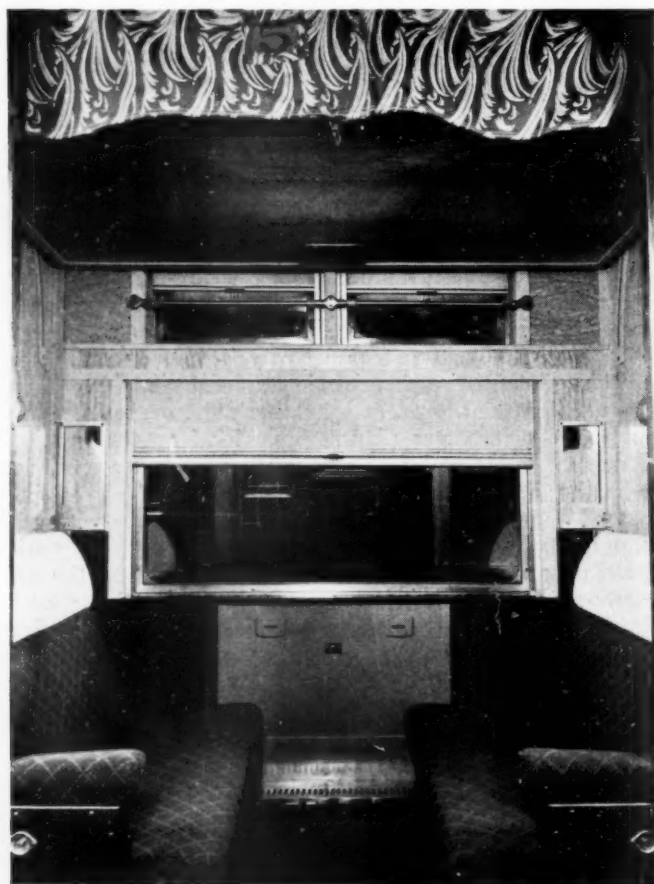
Main Features of the Power Plant

The essential units of each 900-hp. power plant comprise, in general, an engine with its attendant cooling, fuel and lubricating oil systems; power generator and exciter; battery charging generator; the necessary contactors, switches and fuses for the control of electrical circuits. In addition to two such power equipments, each locomotive unit carries a 1,100-gal. fuel tank and a 1,200-gal. water supply for the train-heating steam generator.

Each engine is a V-type, 12-cylinder, two-cycle EMC Diesel, having an 8-in. bore and 10-in. stroke, seven-bearing crankshaft, Satco-lined bearings, drop-forged connecting rods, needle-bearing wrist pins, aluminum pistons, lubricating oil and water pumps, and delivers 900 hp. at 750 r.p.m.

The main generator is a General Electric 600-volt direct-current machine, with differential voltage control through a belt-driven exciter and auxiliary generator set. It is used to supply power for the two G.E. 450-hp. traction motors mounted in the truck immediately below each power plant. This generator also acts as an engine starter when receiving energy from the locomotive battery through separate contactors supplied for this purpose.

A single engine-cooling system consists of 50 sq. ft. of water cooling radiators hung from the roof hatches, through which openings the engine and generators are lowered into the car body. Air for radiator cooling is taken through grilled openings in the sides of the cab body and forced out through the radiator assemblies by three 26-in. propeller-type fans which are belt driven from the main engines. Automatically operated shutter arrangements are provided ahead of each fan group for control of engine water temperature during service operations. With the stopping of the engines, the shutters



One of the Open Sleeping-Car Sections

close automatically and all radiator water drains into the system water storage tanks.

Each engine is served by an independent fuel system consisting of a motor-driven tandem pump arrangement, necessary filters, pressure relief valves, and I.C.C. approved fuel gages.

Steam Heat and Auxiliary Equipment

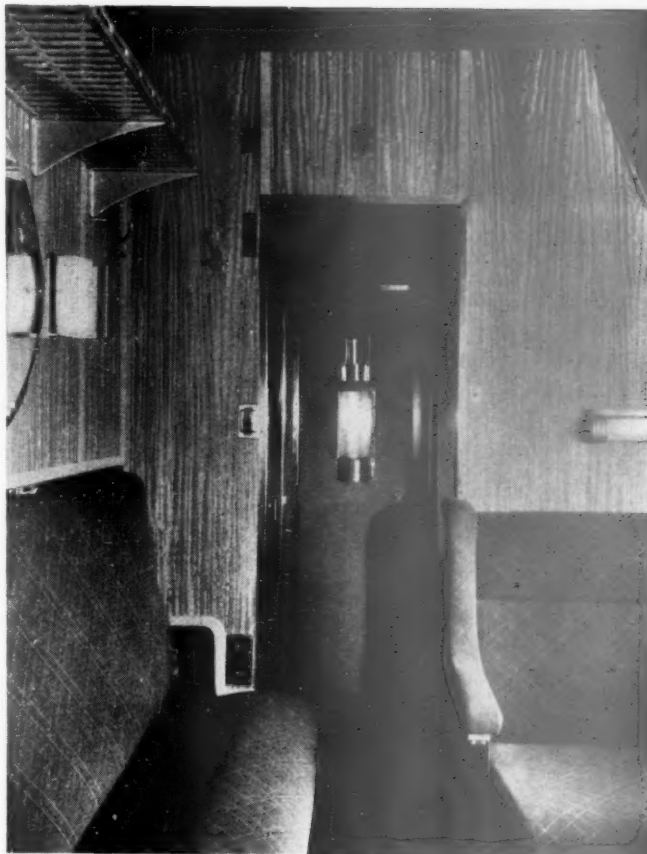
Steam heat is provided by a Vapor-Clarkson flash-type steam generator in each locomotive unit, having a capacity in excess of 2,250 lb. evaporation at 225 lb. steam pressure. Feed-water pumps, fire control, and trainline pressure regulation is fully automatic as adjusted by a single hand rheostat. The steam trainline extends the full length of each locomotive unit to provide steam for heating the operator's cab while in service and to warm the engine water systems during maintenance or lay-over periods.

Air-compressor equipment for both locomotive units consists of four Gardner-Denver two-stage water-cooled compressors, of 79.4 cu. ft. displacement at 750 r.p.m. Each compressor is belt driven from a shaft extension of each main generator. The compressed air is cooled by 42 ft. of fin-type copper tubing and stored in two air-cooled reservoirs, 24 in. by 66 in., having a combined capacity of 56,500 cu. in.

Locomotive air-brake equipment is Westinghouse Schedule 8-EL modified to work in conjunction with U. S. & S. continuous train control and cab signal and to include the features of the HSC (high speed control) schedule. The majority of the air-brake equipment is piped on a single panel mounted in the hood compartment in front of the cab.

This hood compartment also houses the Exide 25-plate, 64-volt locomotive storage battery, and automatic-train-control equipment. Convenient access to this compartment is through a hinged door in the cab front partition under the locomotive windshield.

Locomotive coupler equipment consists of a straight shank, retractable coupler at the front end for emergency service, tight-lock coupler between units, and Type-E



A Stateroom Interior

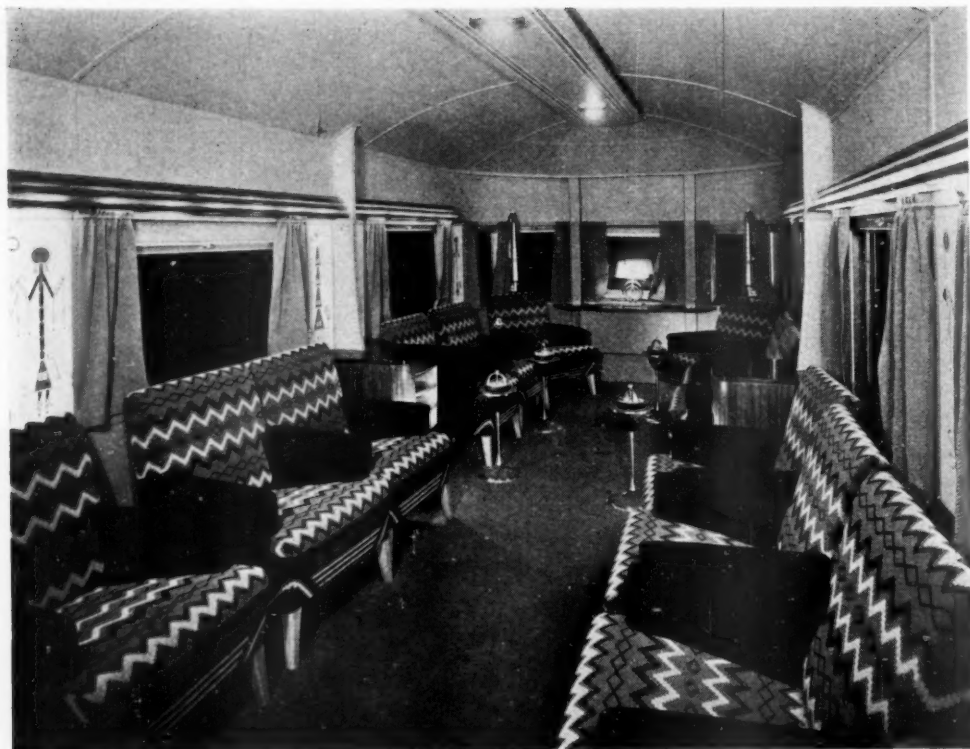
coupler at rear of the B unit. Rubber-type draft gears are employed throughout.

The Passenger Cars

Unlike the trains previously built by the Edward G. Budd Manufacturing Company, the Super Chief is made

Looking Toward the Bar in the Cocktail Lounge—The Back Bar Is Decorated by a "Sand Painting" Figure





Looking Toward the Rear of the
Observation Lounge

up of separate coaches, without articulation. The exterior, however, is completely sheathed with stainless steel in narrow, curved, longitudinally beaded panels below the windows, flat sheets between the windows and corrugated sheets above the windows and on the roof. The surface is not painted, except for the lettering on the letterboards and the name plates.

The cars are built without hoods, conforming in general external appearance to coach No. 3070 which this builder completed for the Santa Fe early in 1936, except that the apron below the sides of the cars has been removed opposite the trucks.

The consist of the train is shown in a table. The total weight of the train ready to run, exclusive of motive power, is 851,000 lb. There are berth accommodations for 104 passengers, with 42 seats in the observation lounge and cocktail lounge and seats for 36 in the dining car. Bunks in the crew quarters accommodate 12 persons.

Interior Decorations

The creation of the architectural and decorative treatment of the car interiors is the result of the collabora-



A Photo-Mural of Navajo Life
Covers the Forward Wall of the
Observation Room

tion of Paul F. Cret, Philadelphia architect, and S. B. McDonald, designing engineer and decorator of Chicago. Roger W. Birdseye, advertising manager of the Santa Fe, collaborated in the application of the southwestern Indian motif, especially in the observation lounge.

The result is that the interior decorations and up-

Partial List of Equipment and Materials on the Santa Fe "Super Chief" Cars

Steel	Rustless Iron & Steel Corp., Baltimore, Md.
Stainless steel	Sharon Steel Corp., Sharon, Pa.
Stainless steel corrugated sheets	The Eastern Rolling Mill Co., Baltimore, Md.
Frames, bolsters, castings	General Steel Castings Corp., Eddystone, Pa.
Castings	Lebanon Steel Foundry, Lebanon, Pa.
Underframes, Cromansil steel	Lukenweld, Inc., Coatesville, Pa.
Wheels and axles	Standard Steel Works Co., Burnham, Pa.
	American Steel Foundries, Chicago.
Crossbars, equalizer beams, swing hangers	Camden Forge Co., Camden, N. J.
Center plates, castings, etc.	Dodge Steel Company, Indianapolis, Ind.
Side bearings	A. Stucki Co., Pittsburgh, Pa.
Bearing wedges	Standard Forgings Corp., Chicago
Spring rigging	American Steel Foundries, Chicago
Spring seats	General Steel Castings Corp., Eddystone, Pa.
Couplers and yokes	American Steel Foundries, Chicago
Journal boxes	The Symington-Gould Corporation, Rochester, N. Y.
Journal bearings	Magnus Co., New York
Draft gear and buffers	W. H. Miner, Inc., Chicago
Buffer springs	Union Metal Products Co., Chicago
Brakes	Westinghouse Air Brake Co., Wilmerding, Pa.
Foundation brakes	American Steel Foundries, Chicago
Hand brakes and chain sheaves	National Brake Co., Buffalo, N. Y.
Brake shoes	American Brake Shoe & Foundry Co., New York
Shock absorbers	Houde Engineering Corp., Buffalo, N. Y.
Insulation:	
Alfol	Alfol Insulation Co., New York
Dry Zero	American Hair & Felt Co., Chicago
Kimsul	Kimberly-Clark Corp., Neenah, Wis.
Dednox	Dednox, Inc., Chicago
Felt	Richards-Wilcox Mfg. Co., Aurora, Ill.
Feltex	Fidelity Felt Co., Philadelphia, Pa.
Cork, tape	Philip Carey Mfg. Co., Lockland, Ohio
Cork, tile and linoleum cement	Armstrong Cork Co., Lancaster, Pa.
Flexwood	John R. Livezey, Philadelphia, Pa.
Plywood	United States Plywood Co., Inc., New York
Presdwood	Haskelite Mfg. Corp., Chicago
Self-tapping screws	Masonite Corp., Chicago
Wovenstone	Shakeproof Lock Washer Co., Chicago
Asbestos	Union Asbestos & Rubber Co., Chicago
Fireproof fabric	Keasbey & Mattison Co., Ambler, Pa.
Rubber	Joseph Benn Corp., Greystone, R. I.
Sponge rubber	The Republic Rubber Co., Youngstown, Ohio
Diaphragm curtains	Allender Body Co., Philadelphia, Pa.
Diaphragms	Adams & Westlake Co., Chicago
Sash	Morton Mfg. Co., Muskegon Heights, Mich.
Sash frames, formers, rolls	Hunter Sash Co., Flushing, L. I., N. Y.
Springs in window sash	Mitchell Specialty Co., Philadelphia, Pa.
Rolling doors and door housing	John Evans' Sons, Philadelphia, Pa.
	Philadelphia Fire Retardant Co., Philadelphia, Pa.
Doors, rolling	Kinnear Mfg. Co., Columbus, Ohio
Door tracks and hangers	Richards-Wilcox Mfg. Co., Aurora, Ill.
Door pulls	Adams & Westlake Co., Chicago
Hinges	The Homer D. Bronson Co., Beacon Falls, Conn.
Locks, grab handles, door bumpers	H. S. Getty & Co., Inc., Philadelphia, Pa.
Locks and latches	Adams & Westlake Co., Chicago
Latches	American Chain & Cable Co., Inc., Bridgeport, Conn.
Locks	Yale & Towne Mfg. Co., Stamford, Conn.
Door closers, friction catches	Russell & Erwin Mfg. Co., New Britain, Conn.
Weatherstrip	Midgeley & Borrowdale, Chicago
Hardware	Thomas Devlin Mfg. Co., West Burlington, N. J.
	American Chain & Cable Co., Inc., Bridgeport, Conn.
	Richards-Wilcox Mfg. Co., Aurora, Ill.
Tread plates	Morton Mfg. Co., Muskegon Heights, Mich.
	American Abrasive Metals Co., Irvington, N. J.
Trap door assemblies	The O. M. Edwards, Inc., Syracuse, N. Y.
Wear plates, pads, washers	Fabreeka Products Co., Inc., Boston, Mass.
Grilles, registers	Hart & Cooley Mfg. Co., Chicago
Filters	American Air Filter Co., Inc., Louisville, Ky.
Air conditioning, fixtures, fans, panels, generators	Safety Car Heating & Lighting Co., New York
Moldings	Bohn Aluminum & Brass Corp., Detroit, Mich.
	Dahlstrom Metallic Door Co., Jamestown, N. Y.
Extruded aluminum	Aluminum Company of America, Pittsburgh, Pa.
Aluminum castings	Rolle Casting Co., Philadelphia, Pa.
Receptacles	Albert & J. M. Anderson Mfg. Co., Boston, Mass.
	Loeffelholz Co., Milwaukee, Wis.
	The Safety Car Heating & Lighting Co., New York
Lighting fixtures	Adams & Westlake Co., Chicago
	Dayton Mfg. Co., Dayton, Ohio
Lights	Pressed Prism Plate Glass Co., Chicago



Navajo "Sand Painting" Figures on the Observation Wall

Wire and cable	Anaconda Wire & Cable Company, New York
Storage batteries	Electric Storage Battery Co., Philadelphia, Pa.
Upholstery	Collins & Aikman Corp., Philadelphia, Pa.
	Massachusetts Mohair Plush Co., Boston, Mass.
	L. C. Chase & Co., Inc., New York
Bed springs	Bunting Glider Co., Philadelphia, Pa.
Mattresses, cushions	Mishawaka Rubber & Woolen Mfg. Co., Mishawaka, Ind.
Stools, seating equipment	Heywood-Wakefield Co., Gardner, Mass.
Table tops	Formica Insulation Co., Inc., Cincinnati, Ohio
Furniture	S. Karpen & Bro., Inc., Chicago
	The General Fireproofing Company, Youngstown, Ohio
Ash trays	Dayton Mfg. Co., Dayton, Ohio
Clocks	Chelsea Clock Co., Boston, Mass.
Carpet	Gimbel Bros., Philadelphia, Pa.
	L. C. Chase & Co., Inc., New York
Carpet pad	Midgeley & Borrowdale, Chicago
Dish washer	G. S. Blakeslee & Co., Cicero, Ill.
Bar and kitchen equipment	Angela Colonna, Philadelphia, Pa.
Servitors	Landers, Frary & Clark, New Britain, Conn.
Curtain material	The Pantasote Company, Inc., New York
Curtain brackets and fixtures, racks	Adams & Westlake Co., Chicago
Curtain-rod fittings	Kirsch Co., Sturgis, Mich.
Seat sprockets, clothes hooks, brackets	American Chain & Cable Company, Inc., Bridgeport, Conn.
Lavatory equipment	Adams & Westlake Co., Chicago
	Dayton Mfg. Co., Dayton, Ohio
Lavatory and fittings	Crane Co., Chicago
Lavatory fixtures	Scott Paper Co., Chester, Pa.
Plumbing equipment	Crane Co., Chicago
Pipe and fittings	Aluminum Company of America, Pittsburgh, Pa.
Mirrors, Duplate glass	Pittsburgh Plate Glass Co., Pittsburgh, Pa.
Mirror frames	Dayton Mfg. Co., Dayton, Ohio
Drinking fountains, tanks, filters	Henry Giessel Company, Chicago
Cup dispensers	Dixie-Vortex Cup Co., Chicago
Copper tubing, fittings	American Radiator Co., New York
Heating, steam traps, fittings	Vapor Car Heating Co., Inc., Chicago
Bushings	Bunting Brass & Bronze Co., Toledo, Ohio
Tubing	Goodall Rubber Co., Philadelphia, Pa.
Interior finish	Murphy Varnish Co., Newark, N. J.
Decalcomanias	National Decalcomania Corp., Philadelphia, Pa.
Fire extinguishers	Phister Mfg. Co., Cincinnati, Ohio
	Pvrene Mfg. Co., Newark, N. J.
Back-up horn	Westinghouse Air Brake Co., Wilmerding, Pa.
Oil	The Texas Company, New York

holstery of the new train suggest the country and the native traditions of the Southwest through which it operates. The colors follow those found in the landscape and in the Navajo Indian craft and ceremonial traditions. The Flexwood wall coverings of the sections, the drawing rooms, compartments and bedrooms are in a variety of rare woods, with adjoining surfaces painted in harmonizing colors. A few of the combinations are figured red gum, with flesh colored ceiling and mist taupe carpet; white harewood, with lemon cream and Vienna drab on other painted surfaces, and a jade green carpet; satinwood set off with blue gray, and a carpet in modern blue; redwood burl, with peach and blue-gray, and a mahogany carpet; Macassar ebony, with peach and light chocolate, and a Rumba carpet.

The "Isleta" and "Taos" each has eight open sections in addition to a drawing room and two compartments. In the Isleta the walls of the open sections and ceilings are finished in wood, with upholstery and rugs in soft blue tones. In the Taos painted surfacing is used and the upholstery and rugs are in soft green tones.

In the diner, the cocktail lounge and the observation lounge the native art of the Southwest has been drawn upon for ornamentation. The Navajo influence is apparent in the selection of fabrics, in the design and color of the upholstery, as well as in the decorative motifs, with which the walls are ornamented. The satin-finished chrome plating of the hardware is also in keeping with the silver work of the early American natives.

In the dining room the carpet has a reddish brown field with black insets and stripes, the side and end walls are veneered with Bubinga, trimmed with chocolate

brown moldings, and the vaulted ceiling is painted flesh. Ebony-finished walnut is used for the window sills, chairs, table legs and tops. A decorative buffet in ebony-finished walnut is placed against the wall. This is surmounted by a peach-colored mirror with overhead illumination. The roller shades are faced on the outside with aluminum Pantasote and on the inside with alternate stripes of white and pale yellow, and the drapes are of tan color.

The carpet in the cocktail lounge is of desert sand color; the side walls are finished in birdseye cypress, with light Portland brown moldings; the upper walls and ceiling are finished with Prima Vera veneer, with light buff moldings; the window sills, desk and magazine rack have ebony-finished walnut tops. The vertical surfaces of the desk and rack are trimmed with Zebra wood to match the front face of the bar. The tables have black Formica tops with stripes of bright metal inserted in the edges. The large tables are mounted in wall sockets and have a hinged leg on the aisle side, whereas the small tables are fastened to chrome-plated tubular supports. The sofas and the small chairs at the tables are upholstered with tan-colored leather. The desk chair and arm chairs are trimmed with henna-colored fabric. In contrast with the brown tones which are so generously used are the satin-finished aluminum bandings on the walls, the stainless-steel structural moldings and heater ducts, the horizontally black-striped cream window drapes, and the Navajo pattern of the roller shades with their black valance.

Two items of particular interest are the inlaid wood back bar ornament and the rug hanging over the desk at the opposite end of the room. The subjects displayed here are as a rule never executed in enduring mediums. These "sand paintings" as they are called are religious pictures which have lived between ceremonials only in the memory of the people. The rug is true Navajo, and the back bar inlay is an authentic reproduction.

The observation lounge in the last car also displays the work of the early southwestern Americans. In this room the setting comprises a carpet of desert sand color, copper-colored lower side walls and a turquoise blue ceiling. The tables at the sides and end are finished with dull black tops.

The desk and bookcase have Mexican parota tops finished in dull black, with bleached and weathered Mexican mahogany legs. The chairs and sofas are upholstered in a reproduction of native weaving, the original of which has been selected for museum display. The windows have brown drapes and tan roller shades.

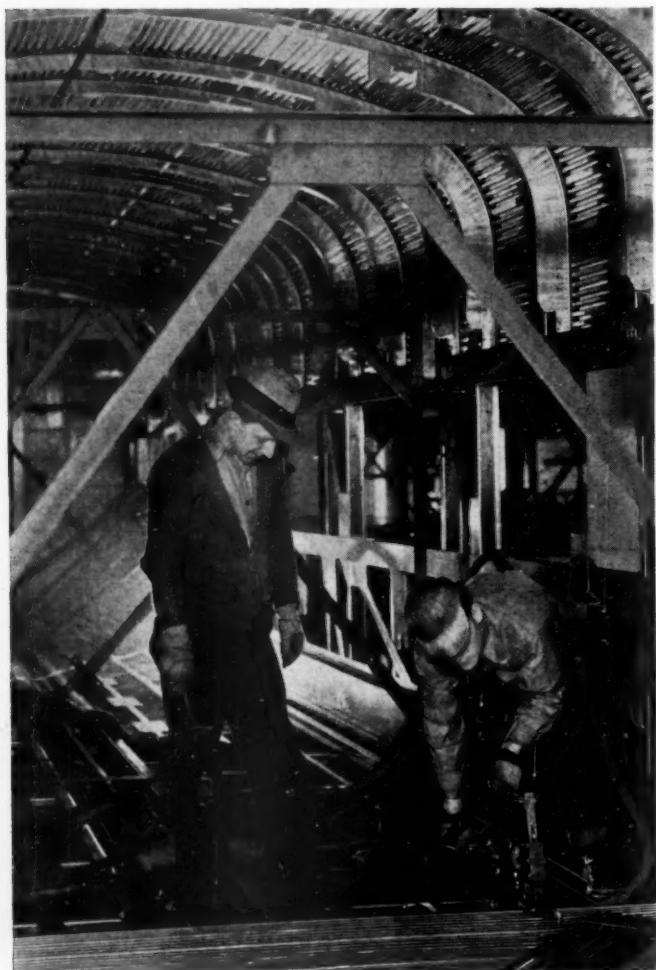
The ornamentation of the pier panels employs authentic copies of sand paintings which occur in the story of Dsilyi 'Neyani, the "Myth of the Mountain Chant." These figures are executed in native colored sands and charcoal, exactly as Navajo prophets have made them for generations.

The photo mural of Navajo weavers at work on their looms over the desk at the forward end of the observation lounge and the rear table lamp with its ceremonial knife stem and goat's skin shade are also in keeping with the Navajo motif.

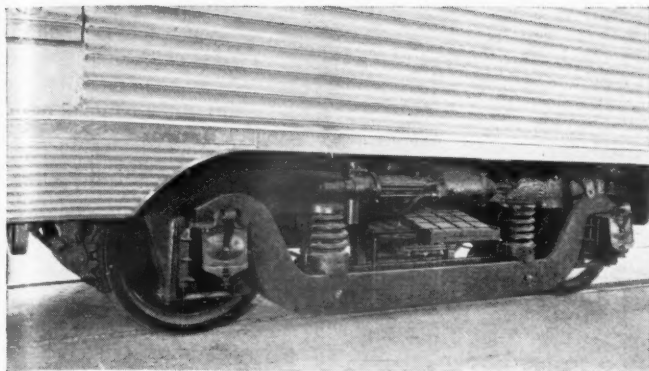
Berths of Unique Construction

Each of the open sections in the first two sleeping cars embodies a maximum of privacy by being partially enclosed by a narrow longitudinal partition extending each way from the aisle side of the section partitions. Additional comfort is assured by making all of the berths 6 ft. 5 in. in length.

A further innovation in berth arrangement is the



One of the Santa Fe Cars Under Construction



One of the Double-Equalizer Trucks

construction of the upper berth. Instead of swinging upward when in day position and forming a curved side ceiling, it is pushed up to a daytime position parallel to the night position, forming a flat ceiling over the section, the narrow opening between the car ceiling and the upper berth being enclosed by the upper berth curtain. The flat upper-berth tray is supported by rollers on four spindles projecting from the ends, one at each corner, into recessed guides in the partitions between the sections. From the day position the upper berth is lowered by first slightly lifting and moving the front of the berth toward the aisle when it will drop to the night position. By a similar operation the back of the berth is then dropped. Because the upper-berth tray is flat, more head room is available for the occupant of the lower berth.

The upper berth is restored to the daytime position by first lifting the rear side, completing the movement by lifting the aisle side of the tray. The berth is securely locked in day position because the supporting spindles and rollers are held in the ends of the guides by gravity, a position from which they can be moved only by lifting through a slight initial elevation in the guides before they are free to drop to the night position.

The Car Structures

The car structures are fabricated from the so-called 18-8 stainless steel by the Budd Shotweld process, except for the end, underframes and bolsters which are Cromansil fabricated by the Lukenweld process. Two

types of stainless steel, based on physical properties, were used in building this train. The high-tensile material has a unit strength of 150,000 lb. per sq. in. and is generally employed in the strength members of the structure. The low-tensile material with a unit strength of 100,000 lb. per sq. in. is used where ductility or special finish is of paramount importance.

A number of changes have been made in details of the structure as compared with those employed in Santa Fe coach No. 3070. In that car a departure was made from the truss form of side-frame structure characteristic of all of the other trains built by this company. Wide vertical members of channel section were placed between the windows. In the cars of the Super Chief a return has been made to the modified Pratt truss type of structure, using narrower vertical channel members and diagonals in the panels between and below the windows.

The underframe structure is essentially that employed in coach No. 3070, except that the channel-section floor stringers have been replaced by members of Z-section. This marks a further step in the progressive simplification of the Budd type of construction by which the number of pieces and amount of welding have been reduced.

With the exception of postal car No. 3400, the dining car "Cochiti," and the sleeper-observation car "Navajo," the car bodies are essentially of the same overall dimensions as the first coach No. 3070. They are 79 ft. 10 in. coupled length; 10 ft. $\frac{1}{8}$ in. outside width, and 13 ft. 6 in. in height above the rail. Inside, the width is 9 ft. $3\frac{1}{4}$ in. The mail car is 73 ft. 10 in. in length; the dining car, 83 ft. 2 in. in length, and the sleeper-observation car, while not appreciably longer than the other sleeping cars, is built with a curved rear end, over which the roof is hooded.

The center of the roofs is insulated with 2-in. Dry Zero. The roofs adjoining the side walls, the side walls and end walls are insulated with 3 in. of the same material. All of the hollow structural members are filled with Kimsul. The space between the tops of the cross-bearers and the under side of the corrugated floor sheets is filled with Hairfelt or Salamander. The floor consists of 1 in. of cork laid over the corrugated floor sheets, the recesses of which are filled with cork strips. Above the cork is a $\frac{1}{4}$ -in. Super Pneu pad on which the carpet is laid.

The ceilings and side walls of the cars are generally finished with Masonite which, on the walls, forms the



Rear View of the New "Super Chief"

base for the Flexwood surface and, on the ceiling and parts of the walls, has a painted finish. The partition frames are of carbon-steel tubes of square cross-section to which the Masonite is applied by Shakeproof self-tapping screws. The Masonite is insulated from the steel work by strips of gummed cork-felt tape throughout the cars.

The outside doors throughout this train are so constructed as to fit flush and present a continuation of the body surface when closed. The passenger doors are fitted with O. M. Edwards folding steps, which, when not in use, are folded up to close the step well with an outside surface similar to that of the body proper. The steps are faced with aluminum Diamondette treads with a nosing of punched and formed stainless steel as a guard against slipping.

The interior doors are hinged in such a manner that there is no possibility of pinching, without the use of anti-pinch plates.

The windows in the passenger occupancy sections of these cars are double glazed with the outside glass fixed in the car body and the inner glass mounted in a hinged frame. The inner glass can be unlocked and swung inward to permit cleaning. The glass in both frames (inner and outer) is set in rubber to eliminate the transfer of any strain to the glass. A rubber gasket seals the space between the inner and outer sash. A departure from standard practice is the arrangement of small windows in the letterboard area of the open sections for the use of the upper-berth occupants. These are of the same construction as the large windows with their fixed outer sash and hinged inner sash. Small windows in the aisles, in the kitchen, and in the rear of the last car are of the movable type and are provided for emergency ventilation and to facilitate terminal servicing. All plain glass is shatterproof, $\frac{1}{4}$ in. thick.

Electrical Equipment

The electric power is 32-volt, d.c., supplied by Exide 850-amp. hr. batteries charged by Safety $7\frac{1}{2}$ -kw. body-hung generators with flat-belt drive from axle pulleys. Wire is carried in thin-wall steel conduits where practicable. In partitions the square steel structural tubing is fitted with adapters and used to carry the wires. The lighting circuits are protected with fuses in conveniently located and labelled panels.

All lighting is direct. The fixtures are for the most part especially designed to present an appearance in harmony with the decorative schemes employed and to furnish satisfactory lighting.

Air Conditioning and Heating

Conditioned air, composed of a controllable amount of fresh air from the outside and recirculated car air, is supplied to all passenger occupancy sections of this train. Both fresh and return air are filtered through washable metal filters before being passed over coils for cooling or heating. The subsequent delivery by insulated metal ducts and through lighting fixtures furnishes air to all parts of the train occupied by passengers. Special branch ducts carry air to the berths of the sleeping sections.

The Safety-Carrier steam-ejector equipment is mounted below the car floor, and the cooling coils are mounted between the false ceiling and the roof. Vapor temperature-controls are fitted, and the ratio of fresh to recirculated air is controlled by manually operated dampers. Exhaust ventilators are fitted in the roofs over the toilets.

The passenger cars are equipped with the Vapor heating system. Individual thermostatic control is provided in each drawing room, stateroom and bedroom.

Water System

All service water for the passenger cars is carried in stainless-steel tanks, mounted under the cars, from which it is delivered by air pressure to the various outlets. The system used in the dining car is similar, except for the addition of overhead storage tanks, one for hot water and one for cold filtered water. The water system in the railway post office and the mail-storage cars is similar to existing equipment; i.e., gravity feed from overhead tanks. Separate tanks are installed beneath the floor of passenger cars to carry the make-up water for the air-conditioning equipment. Filler inlets are placed in the sides of the car body to permit rapid and easy filling at the water stations.

Water coolers fitted with self-closing taps are located throughout the train for the convenience of passengers as well as in the kitchen and bar. The sleeping rooms are fitted with water carafes made on the vacuum-bottle principle and which the attendant will fill at the water coolers in the aisle.

All plumbing fittings and fixtures are of high quality. Washstands are vitreous china, colored to harmonize with the washroom interiors; hoppers are furnished with porcelain bowls, and the dental bowls are of the same material and color as the wash basins. All exposed piping is satin-finished chrome plated.

Mechanical Equipment

The trucks are four-wheel double-equalized type with integral frames and transoms of cast nickel steel, double annealed and drawn.

The frames are designed to withstand 200 per cent braking power. All bearing surfaces are carefully machined and all brake-pin holes are bushed with case-hardened sleeves. Surfaces subjected to friction are faced with manganese steel liners, and unfastened metal-to-metal contacts are insulated with sound-deadening material. The trucks on the first five cars are fitted with friction type bearings in Symington boxes with Magnus Company Satco bearings, the Freedom rolled-steel wheels on these being 35 in. in diameter. The trucks on the last four cars are fitted with American Steel Foundries roller-bearing units with SKF roller bearings. All axles are nominal $5\frac{1}{2}$ in. by 10 in.

The coil truck springs are made of silico-manganese steel, and the elliptic springs of chrome-vanadium steel. Lateral movement of the truck bolster is dampened by the use of Houde hydraulic shock absorbers.

The cars are fitted with American Steel Foundries light-weight, high-tensile, controlled slack couplers, and Miner A4XB draft gears. The buffers are Miner B18X. The coupler-suspension guide, as well as the buffer stems, are Fabreeka surfaced.

All water, air and steam piping is made of soft heavy-wall copper tubing. Standard fittings are attached by the use of Parker adapter joints.

DURING THE SNOW AND SLEET STORMS of the past winter, wire service was disrupted on the Coos Bay branch of the Southern Pacific between Eugene, Ore., and Marshfield. Harold Gray, son of Agent P. P. Gray of Marshfield, came to the rescue with his short-wave amateur broadcasting station, and, for some time, with the aid of another "ham" in Portland, provided the only means of communication that was open between Marshfield and the dispatcher's office in Portland.

The New Bridge Railway
Will Use Half the Lower Deck
for Trains of the Key System
and the Southern Pacific



Operating Trains Across San Francisco Bay

Definite plans laid in advance by Southern
Pacific and Key System for large
suburban operations

TEN-CAR suburban trains, operated on a headway of 63.5 seconds, at speeds of 35 m.p.h. or better, and a terminal capable of handling 1,160 passengers a minute, feature the plans for suburban service over the recently opened San Francisco-Oakland bridge. Elaborate and definite preparations are already being made for a huge trans-bay operation, although the double tracks now being laid on the lower level of the gigantic bridge, and the terminal improvements, will not be ready for use until sometime in 1938.

The terminal facilities in San Francisco, with the bridge railway and the necessary yards, will cost about eleven million dollars, and another five million dollars will be expended for track changes in existing lines, for new equipment, and for changing existing equipment to meet the new needs. The terminal facilities will include a loop-type terminal in San Francisco; a three-story building, which, including train sheds, will be 700 ft. long, occupying the entire frontage on Mission street, between First and Fremont streets. Trains will operate into this terminal over an elevated viaduct connecting with the bridge. The loop tracks and the six loading and unloading tracks will be completely housed within the station structure. Other construction includes a double-track railway occupying the south side of the lower level of the bridge, a storage yard for equipment on the Oakland side of the bay, and numerous track

changes in the Oakland area to provide for connections with the bridge tracks.

The Southern Pacific has formed a wholly-owned subsidiary, the Interurban Electric, which will be a joint user, with the Key System, of the bridge railway which will have a potential capacity of 48,000 passengers an hour. In theory, the bridge railway might, at some time in the future, be used by main-line trains. Actually, however, because main-line equipment is too heavy for the structure, present plans contemplate that operations will be confined to lighter suburban equipment, and main-line passengers will continue to be ferried across the bay as at present.

Financing

The bridge was financed in two ways. The structure itself was financed by the bridge authority by the sale of bonds to the Reconstruction Finance Corporation. The viaducts leading to the bridge on both the San Francisco and the Oakland sides were financed by the state of California out of the gasoline tax. The bridge railway is being financed by the bridge authority through the sale of additional bonds, the principal and interest of which are to be met by passenger tolls. The toll per passenger has been set at 2.5 cents for the first 18 months' operation, and the railways will absorb this

amount during this experimental period. Afterward, the volume of traffic handled will control the raising or lowering of the toll.

The bridge authority will also supply the new capital required by the railways for the improvements mentioned. Insofar as this capital is used for changes in tracks, or for equipment, the railways will turn over to the bridge authority a like value in added or changed facilities or land at present owned by them and required for the construction of the bridge railway. Thus, the bridge authority will own railway facilities costing approximately 15 million dollars, and the carriers will retain ownership of such of their present or altered facilities as have not been turned over to the authority in accordance with the above arrangement. The carriers will maintain and insure all of the bridge railway facilities, including those owned by the bridge authority.

Operations

The Interurban Electric and the Key System will operate the bridge railway jointly. Because of the difference in voltage—the Interurban trains using 1,200 volts, and the Key System 600—two separate power supply lines will be provided, the Interurban using an overhead catenary system with pantograph operation, and the Key trains a third-rail system. After leaving the bridge railway, however, the Key System trains will change over to the existing overhead catenary system.

At first, trains will be operated under a 75 sec. headway, at a maximum speed of 35 m.p.h. If sufficient traffic develops to warrant a closer spacing, the signal system will provide for spacing as close as a minute between trains. The principal saving in time for passengers will be found, however, not so much in the speed of the trains across the bridge as in eliminating the delays involved in transferring from the trains to the ferry and vice versa, as required under the present system. In addition, the new terminal in San Francisco will be much nearer the destination of 96 per cent of the commuters, than the Ferry building, where they now disembark in San Francisco, on the bay front and at a considerable distance from the business and shopping districts. It is estimated that passengers will save from 12 to 24 min. per trip, depending upon their points of origin and destination.

Equipment

The present equipment used by the Southern Pacific in suburban service, consisting of 145 all-steel cars and involving an investment of about five million dollars, will be retained by the Interurban Electric for the bridge railway operation. However, all of these cars will be equipped with automatic cab signal control, improved air brakes, new couplers, additional motors and other improvements to fit them for bridge service.

The Key System is providing 88 articulated cars, some of which were built new and others remodeled. These cars are streamlined, and consist of two-car units mounted on three trucks, with the center truck immediately under the junction of the two units. Each of the car body sections is equipped with motors aggregating 440 h.p., and will seat 126 passengers. These cars had to be specially designed not only for the bridge service, but also for operation over the sharp curves on the mainland in the East Bay district.

No definite date has yet been set for beginning these operations, but it is expected that everything will be in readiness and the service instituted sometime during the summer of 1938.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading for the week ended May 8, totaled 767,481 cars, a decrease of 14,942 cars or 1.9 per cent below the preceding week, an increase of 98,615 cars or 14.7 per cent above the corresponding week in 1936 and an increase of 192,461 cars or 33.5 per cent above the corresponding week in 1935. All commodity classifications except forest products and ore showed decreases below the preceding week, while all commodity classifications except grain and grain products showed increases over last year. The summary, as compiled by the Car Service Division, Association of American Railroads, follows:

Revenue Freight Car Loading

For Week Ended Saturday, May 8

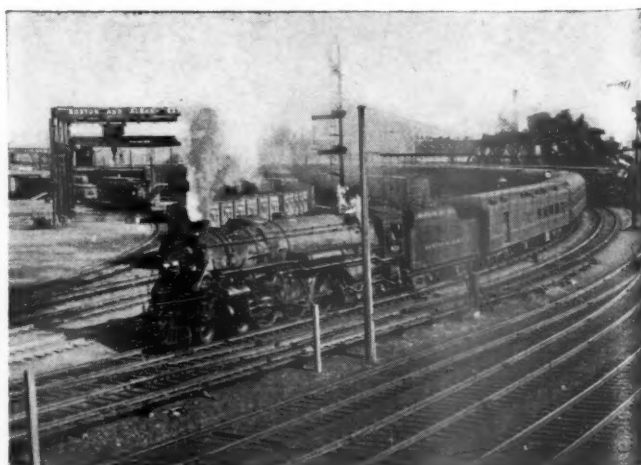
Districts	1937	1936	1935
Eastern	170,049	147,861	134,058
Allegheny	162,849	134,244	109,914
Pocahontas	49,639	46,420	37,588
Southern	102,235	96,450	82,605
Northwestern	125,338	96,678	82,551
Central Western	103,878	94,315	83,610
Southwestern	53,493	52,898	44,694
Total Western Districts	282,709	243,891	210,855
Total All Roads	767,481	668,866	575,020
Commodities			
Grain and Grain Products	27,641	31,144	25,915
Live Stock	13,954	13,142	13,802
Coal	112,074	110,618	95,567
Coke	10,280	7,846	5,712
Forest Products	37,316	31,867	24,433
Ore	71,980	31,199	25,616
Merchandise L.C.L.	173,168	162,769	159,745
Miscellaneous	321,068	280,281	224,230
May 8	767,481	668,866	575,020
May 1	782,423	670,888	568,927
April 24	761,182	665,949	558,936
April 17	751,328	642,278	611,141
April 10	716,044	621,843	586,568
Cumulative Total, 19 Weeks ..	13,603,784	11,785,242	10,950,966

Car Loading in Canada

Car loadings in Canada for the week ended May 8 totaled 51,174, an increase of 1,727 over the previous week and of 3,912 over the corresponding week last year, according to the compilation of the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
May 8, 1937	51,174	30,609
May 1, 1937	49,447	30,559
April 24, 1937	47,146	30,731
May 2, 1936	47,262	26,651
Cumulative Totals for Canada:		
May 8, 1937	852,621	516,521
May 2, 1936	767,861	423,607
May 4, 1935	768,551	411,626

* * *



Boston & Albany Train Leaving South Station, Boston, Mass.

Mass Methods in Accounting*

Mechanization and specialization seen as way to time and money savings, better and quicker reports

By G. J. Bunting

Vice-President, Illinois Central

"HIGHER wages and shorter hours without increase in basic prices" is the hue and cry today. This attitude forces resort to short-cut methods, mechanized substitutes for labor, and ingenious forms of mass production. L. A. Downs, president of the Illinois Central, in a recent address, said in part:

"Railroads are one of the foremost mass production industries employing last year some two and one-half billion man hours in the production of roundly 300 billion ton miles and 20 billion passenger miles of transportation. This transportation is cheap and widely used because it is mass transportation, produced by mass production methods. When reference is made to mass production, the mind turns to the automobile industry. One of its unique contributions to industrial technique is the assembly line; we are using the assembly line method in repairing cars and locomotives."

The Letter Press, the Forerunner of Mechanization

This is true also in railway accounting. Consider the simplest of mass production methods—the old "letter copy presses" to avoid making copies of communications in longhand—a saving in time and expense. It is a pure, though limited, example of the principle. Many a backache was made, but many more were saved by this crude method of retaining copies of letters, manuscripts, and statements of all kinds before the advent of carbon paper, and what a saving in expense and time it proved to be!

Through the efforts of the Railway Accounting Officers Association and, in some instances, by virtue of regulation, forms not only of stationery, but of all sorts of documents, waybills, abstracts, bills of lading were standardized, and as a result, many of the printing plants were enabled to adopt the mass production principle, whereby they had only to change the name of the railroad company to use the same type setup for printing similar forms for many railroads. Printing costs to the railroads as a whole were greatly reduced thereby. Also consider the "Repeat" envelope with the "tuck in" flap as another instance of mass use.

Then consider shorthand, the use of which was, indeed, time-saving even before the advent of the typewriter. Stenography was the precursor of the modern typewriter. How this phase has been developed in more modern times is little less than marvelous. Consider the adoption of the dictating machine with centralized bureau operation and the mass production possibilities inherent therein. How far such an operation is from pen and ink and the old letter copy press! The only elimination that I regret in the process is the beautiful script handwriting of the copy clerks of those days. What a God-send was carbon paper! Then came duplicating machines, followed by planograph and photostatic processes.

* Abstracted from address at recent regional conference of railway accounting officers at Chicago.

The introduction of mechanical punch card machines permitted the mass production of statistical data within short limits of time and with the least manual labor, which could never have been accomplished without such devices. These mechanical appliances have made possible what was thought impossible thirty years ago in the collation and recording of statistical data. These machines make available statistical data, which would be prohibitively expensive under manual methods. We can readily visualize the handicaps entailed if we had to prepare data for a modern rate case without these devices.

I recall on one occasion that a high executive officer, unfamiliar with detailed accounting practices, visited a modern accounting department, and when he entered the room his remark was "This is not an accounting department. It is a machine shop." And when the use of the devices was fully explained, and their operation understood, he quickly recognized that indeed he was looking upon a real "assembly line" in connection with the work then being performed, and that the cards were susceptible to various further uses with little manual labor.

The use of the check-signing machines has also proved to be an economy in many directions under mass production. Such railroads as have placed these devices in use have eliminated a large number of assistant paymasters and other employees, who formerly signed checks and drafts by manual labor methods.

In many offices, especially the financial offices in New York, an older signing device was used to make, at most, sixteen signatures at one time. The check-signing machines, limited only by their speed, not only eliminate manual labor in signing checks and drafts, but give added protection against forgeries in the die devices.

Divisional or Central Accounting

There are divergent opinions as to the merits of centralizing or decentralizing accounting work, especially in the field of divisional accounting, but I believe that the roads which, during the depression, changed from the decentralized plan to the centralized plan have marveled at the great saving of expense afforded by the latter. I think that the trouble, if any, may arise under the centralized plan in satisfying the division officers as to the accuracy of the work. It at least has put a stop to accounting abuses inherent in any decentralized plan under budget problems, where explanations of increases or decreases are required of divisional officers. Such abuses as may be inherent in the divisional plan are removed when control is centralized and removed from local jurisdiction. Under the decentralized plan, mass production methods are not capable of introduction to the same extent as the centralized plan affords. Duplication of overhead is eliminated and standardization is much easier.

In spite of all the general accounting officer can do,

individual divisions will resort to divergent methods, most of which divergencies involve more expense than standardized procedure. Of course, standardization must not be static. The assembly line cannot be static except for stated periods, and so accounting methods must be uniform for stated periods if mass production methods are to be used. Short-cut methods under bureau administration are much more easily available under the centralized plan than they can be under decentralization.

Until a few years ago, the disbursements accounts of the Illinois Central were conducted under a divisional plan whereby each division superintendent, master mechanic and storekeeper maintained a separate accounting force. The jurisdiction of the accounting department extended only to results. There had, however, been developed, perhaps unconsciously, a certain adherence to the mass production principle in that, of necessity, various phases of the work were performed at about the same time each month. Time-keeping and tonnage work were performed daily, payrolls were prepared immediately following the end of a payroll period; the monthly accounts work, in which there was likewise a more or less fixed order of procedure, followed the payroll work for the second period. This was followed by various statistical reports, and by that time, preparation of payrolls for the first period of the succeeding month was at hand. Following this, there was usually a variable period of slack production. This was occasioned from the fact that the force required to perform the payroll and monthly account work was excessive in the latter part of the month.

These tasks, now centralized under the accounting department, are at present done under the mass production principle. Centralization was also extended to more than the mere consolidation of the divisional, shop and store accounting forces. A thorough study was made of all of our work and related features were centralized so as to avoid duplication of records and handling, with the result that the same or better results are obtained, in a more uniform manner, at an earlier date and much more economically.

Keeping Capital Accounts Up-to-Date

Our handling of capital expenditure and valuation accounting and the extensive reporting in connection therewith may be cited as an example of simple coordinated methods. Details of these expenditures are set up currently each month from the original records in the form of a consolidation by items of property and their cost, so that, as each project is completed, the usual laborious and expensive analysis (especially if performed some time later in another office or department from transcribed detail and away from the original records) is avoided. Accumulative summary for each project is prepared as a part of this procedure, which is given to officers in charge of such work, together with a summarized detail of the monthly charges.

Preparation of roadway completion reports is usually a simple matter, and consists of checking the consolidated details which have been currently prepared, with an inventory report of the completed work, and is promptly done. Accounting and reporting work required of us is, in this way, performed progressively and in step with physical work, so that, as projects are completed, our accounting and reporting in connection therewith is likewise finished. Each roadway completion report is also currently recorded in the necessary form for the annual valuation report required from railroads by the Interstate Commerce Commission in respect to additions to, and retirements from, their properties during the

year, in rigidly prescribed detail as to units of property and their cost.

We have recently obtained the approval of the Commission for the use of the combination equipment completion report and record of property changes, in which such changes are recorded currently each month, in the same form and detail as is required for the annual valuation report. Totals of the monthly recordings, without change, provide the information necessary for the annual report. This record is similar in character to the current detail prepared for roadway projects and further serves as a detail of monthly changes in the depreciation base. The use of this common record as a detail of the investment account and depreciation base, as well as for valuation reporting, not only avoids the expense of making three or more separate records, but also the necessity for reconciling and balancing each with the others.

The establishment of a current and fixed order of procedure for this work follows the principle of mass production, and the necessity for maintaining the continuity results in the work being strictly up to date at all times. The usual length of time for rendition of the annual valuation report has been shortened to a considerable extent. We are rendering this report on time.

Numerous time studies have been conducted in connection with various phases of the disbursement accounting work, for the purpose of developing the most efficient procedure and for consideration of the possibilities in the use of machines. We have also profited from the free exchange of ideas with representatives of other railroads and, in turn, have welcomed studies of our methods. Consideration of the use of machines is finally concluded on a comparative dollar basis in which all elements of expense are included. A large part of our recording and all of our calculating work are performed mechanically in one way or another.

Specialization Fosters Efficiency

One of the greatest factors for economy in the centralization of accounting work is specialization on the part of individual employees, which has greatly increased their capacity, the uniformity of results and the satisfaction of the employees themselves. Centralization of the work in two offices was primarily for geographic reasons—but with uniform procedure and about equal distribution of volume of work in each office, one office provides a valuable comparison with the other.

Average hourly rates, including an average proportion of foremen's salaries, are used in accounting for expenditures for section gang labor, avoiding a large number of calculations each month. The rates paid per hour are the same on a district, and in many cases on an entire division, and we merely add up the total hours worked on each type of work for gangs having the same rates of pay, determine the average rate per hour by dividing the total payrolls for these same gangs by the total hours worked, and the resulting average rate per hour is used in extending the hours worked for each item of work. The assignment of hours worked by track gangs, as between various phases of work involving different primary accounts and even a separation between additions and betterments and other work, is always more or less a matter of some person's judgment, either of the gang foreman, or of a timekeeper having no practical knowledge of the work, and will vary according to the individual making the assignment. The result is necessarily an approximation, tediously determined, and practical accounting does not require such approximations to be meticulously handled in other respects. The use of average hourly rates has been ex-

tended in a large extent to maintenance of equipment work.

The work of accumulating train, engine, car, and ton mile statistics, which is performed by the disbursement accounting force, is entirely mechanized. The statistics with respect to each train are mechanically calculated from the individual reports and the data are accumulated on machines that automatically compute all totals necessary. The data on each report are accumulated for a month so that the report covering the last day of each month shows totals of the month's operations. Each phase of the work is required to conform to a fixed order of procedure—the essential characteristic of mass production.

The preparation of bills covering repairs to freight cars of foreign lines is another item of work involving mass production. Billing machines, especially adapted to accommodate the use of totalizers, are used, which automatically compute the totals of the various items of labor and material. A large saving in clerical and calculating work is effected through this method. The use of the private exchange automatic telephones has proven to be both a money-saving as well as a time-saving device. The use of departmental inter-communicating phones permits instant contact and constitutes a great convenience and time-saver.

The use of duplicating machines has been extended during the past several years. Photostatic machines are used to a considerable extent in the making of exact copies of documents, records, etc., which work could not be performed otherwise. Perfect copies of pay and other documents containing endorsements, signatures, etc., are reproduced and are generally accepted in lieu of the original document itself. Duplicating machines have been greatly improved and their use enlarged during recent years, particularly for the purpose of producing statements and records requiring a color scheme—namely, purple for debits and red for credits.

Standardization of methods, forms, and types of machines plays no small part in our procedure. The use of form letters which cover recurring subjects, and advance blocking out of certain forms and reports by reproducing methods, permits a saving of a great amount of typing and stenographic work. Stenographic, machine work, typing, and calculating work is fully centralized in each office, which forces standardization, and thereby accomplishes better and more economical results. Typewriters are all the same manufacture and style type, which is an advantage in the handling of work of the same nature within a given time. Dependence on individuals is reduced to a minimum by the uniformity of methods followed.

As an example of the advantages of centralization, timekeeping for train and enginemen may be cited. Under the centralized plan, it suffices to have a limited number of employees acquainted with and qualified to apply the various schedules in marking allowances, after which less experienced employees may be used as posting clerks; whereas under the divisional plan, practically every timekeeper must understand the various intricacies of and be able to apply the several schedules. As a further illustration, attention is directed to the matter of shop labor and material distributions, in which employees, specifically assigned to this particular work, become very efficient. This same principle applies throughout the disbursement accounting field, since there is a sufficient volume of each kind of work to permit specific assignments, thereby developing experts in the various phases of the work.

Many railroads during the depression have brought the accounting of their large stations into a centralized

group at the main office, and, by this means, the mass production principle has been injected at very large savings in expense. I believe also that station employees are less susceptible to shortages under this method than formerly.

Many railroads have installed stamp machines for affixing or printing U. S. postage, and it would be surprising to know to what extent that, prior thereto, many letters went out with three-cent stamps, when two-cent local delivery stamps would have sufficed. Letters are sent to this bureau, and there segregated as between those requiring one-cent, two-cent, three-cent or more postage, and as a result, through this arrangement large savings have been effected. Guesswork as to weight and necessary postage has also been eliminated.

By the use of the bureau plan for calculating operations, mass production is made available and verification and original data are compiled expeditiously and at a minimum of cost.

I recall a visit to an advertising office where, to meet the necessity of mass production of letters that would give the impression that each was specially written individually, there were some thirty or forty typewriters hooked up electrically and each was simultaneously writing a letter that was being transcribed on a master typewriter, thus getting away from the earmarks of form letter printing so evident when ordinary multiple processes are used. Adding machines of all kinds play a part in the picture, and are necessary adjuncts in modern accounting offices in mass production methods, as are machines for multiplication, subtraction and division.

"Assembly Line" in Freight Accounting

I think the "assembly line" is easily recognizable, for instance, in the bureaus of our freight auditor's office. Here we have the following bureaus:

Interline Received	Claim and Record
Interline Forwarded Verification	Interline Forwarded Checking and
Interroad settlement and correspondence	Balancing
Billing Machines	Interline Forwarded Advances and
Calculating Machine	Prepaid
Earnings—Statistics	Tracing
Tabulating Machines	Local Abstract
Key Punch	Switching
Dictating Machines	Charter Tax
Revising	Station Accounts
Rate	Revising Bureaus at stated points

The multibill is another basic principle for mass production that was adopted on October 1, 1936. The form is issued only for l.c.l. shipments and for movements between points on our lines. Two forms are provided, one consisting of eight parts for waybilling l.c.l. collect shipments and one of ten parts for waybilling l.c.l. prepaid shipments. The individual parts of these forms are arranged as follows:

Form 166-8, "Collect" Multibill	Form 166-10, "Prepaid" Multibill
Part 1. Freight Waybill	Part 1. Freight Waybill
" 2. Freight Bill	" 2. Freight Bill
" 3. Cashier's Memorandum	" 3. Delivery Receipt
" 4. Delivery Receipt	" 4. Drayman's Memorandum
" 5. Drayman's Memorandum	" 5. Arrival Notice
" 6. Arrival Notice	" 6. Destination Agent's Record Copy
" 7. Destination Agent's Record Copy	" 7. Prepaid Freight Bill
" 8. Billing Agent's Copy	" 8. Copy of Prepaid Freight Bill
	" 9. Cashier's Memorandum
	" 10. Billing Agent's Copy

All parts of the multibill are made at one time at the billing station by use of carbon paper, a separate bill being made for each shipment. Parts 1 to 7 of the collect multibill and parts 1 to 6 of the prepaid multibill are forwarded to destination with the freight. Part 8 of the collect multibill and parts 7 to 10 of the prepaid multibill are retained by the billing station.

The multibill was designed and placed in use for the purpose of eliminating the preparation of freight bills

at destination stations, which is a duplication of the work performed at the billing station in the making of the waybill; also to expedite at destination stations the checking of l.c.l. freight, delivery thereof to draymen and patrons, the obtaining of receipts for freight immediately upon delivery thereof and prompt collection of transportation charges.

I should like also to mention another step of great importance,—the establishment of railroad collection bureaus in our large commercial centers. Most of you can understand how mass production methods are involved in handling freight charges for a large number of railroads with the same individual consignee or ship-

per. Then, too, there is the advantage of multi-ride commutation tickets with color schemes in connection with all classes of tickets and gate collections under a pay-as-you-enter plan in suburban territory. While these schemes facilitate the handling of traffic at ticket windows and overcome the inability of conductors to make collections on trains that would otherwise result, they also serve to protect the revenue of the carriers and lessen the accounting work in the audit office.

Accounting officers have not been unaware of the possibilities of mass production, and we are abreast of the times in these most improved labor and time saving production methods.

Transverse Fissure Fractures

A discussion of the differences in causes and of the rate of growth of this dangerous form of failure

By Charles W. Gennet, Jr.

Vice-President, Sperry Rail Service, Chicago

THE late eminent engineer-physicist, Dr. James E. Howard, who devoted so much thought to transverse fissures in rails, as well as to fractures of other metal structures, used to say that a study of the characteristics of a fracture would often afford a better explanation of its development than resort to common tests. The appropriateness of his remark is well illustrated by references to various types of transverse fissures, differences in which are frequently found by breaking rails where a detector car has located fissures.

The three transverse fissures shown in Figs. 1, 2 and 3 are those of the type commonly located by detector cars

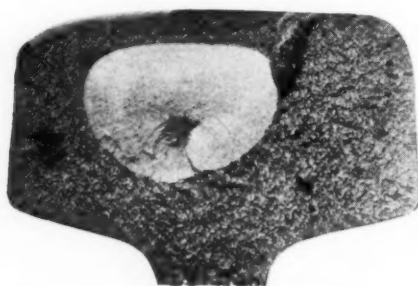


Fig. 1. A Typical "Air Tight" Fissure

or found broken in service. Fissures Nos. 1 and 2 are of the "air tight" variety, wherein the fissure has not reached the surface and is, therefore, bright and shiny. In Fig. 3 the fissure has grown to the periphery of the rail and its surface has become discolored by oxidation due to the admission of air and moisture. The fissure shown in Fig. 2 is conspicuous as representing what is probably the highest state of development, for it shows the more or less concentric rings around the nucleus that are evidence of a progressive growth; also, its top part is flattened out at substantially the locality where the hard cold rolled metal of the head surface merges



Fig. 2. A Highly Developed Fissure Whose Concentric Rings Show Evidence of Progressive Growth

with the more normal structure of the interior. Transverse fissures seldom seem to "grow" through this cold rolled metal, though at times they may "break" through it.

Figures 4, 5 and 6 show transverse fissures that are manifestly of an entirely different type from the others, for the characteristically smooth surfaces show interruptions in the form of a crystalline structure similar to the normal metal of the rail. Obviously, something unusual has occurred to affect or impede the customary development and to account for the differences in appearance shown.

Figure 4 shows a detected fissure found 30 days after the same detector car had tested the rail containing it and obtained no indication whatever. Close examina-

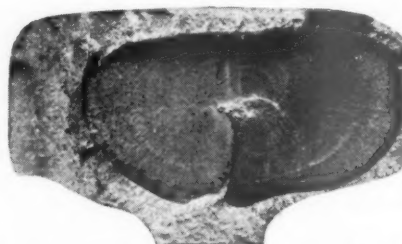


Fig. 3. A Fissure That Had Broken Through, Showing Discoloration from Air and Moisture



Fig. 4. A Fissure Covering 30 Per Cent of the Head That Had Apparently Grown from a Minor Fissure Within 30 Days

tion reveals the distinct presence of a small "mother" fissure about $\frac{3}{8}$ in. in diameter around the customary nucleus. In all probability it was present when the car first tested this rail but it was then too small to be detected. At first glance, the small fissure appears to have grown to cover about 30 per cent of the head area in the 30 days between the first and second tests, but closer examination shows that in all probability it was detected before all of its surface had time to assume the smooth, amorphous form of a real characteristic fissure (such as shown in Fig. 1).

Figure 5 is of the same general character, but the important point of interest is the extent, in the lower left hand part, of the crystalline metal between the tell-tale rings that are so indicative of the progressive expansion or spreading of the broken metal. The evidence is quite indisputable in these two cases that there has been a rapid, or perhaps sudden, growth of the original

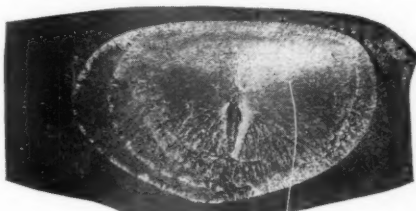


Fig. 5. A Fissure Whose Crystalline Metal Indicates Rapid Growth

fissure, and that detection or complete rupture has occurred prior to the time required for it to reach the state of normal development. Figure 6 is of a similar type except that as the growth, or spreading, of the fissure reached the surface and became partly oxidized, the mother fissure and the crystalline metal between the rings stand out somewhat more in contrast.

Similar cases of the sudden, or rapid, spreading of transverse fissures are by no means rare. As already suggested, the best examples can probably be obtained by breaking fissured rails immediately after they have been located by detector cars. But similar examinations of the fractures of fissured rails found broken in service often emphasize the fact that some fissures grow with much greater rapidity than was formerly realized.

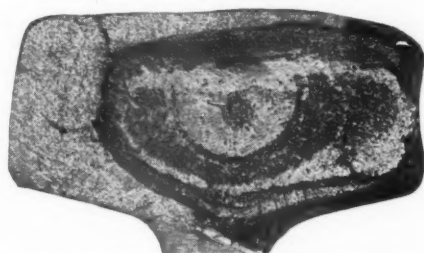


Fig. 6. A Fissure Whose Rapid Growth Is Made Evident by Oxidation of Surface

Even so, this is not an entirely new phase of fissure development, for nearly 15 years ago a peculiar fissure was described as "having the appearance of steady progress for a time and then a shock-break," and there was a close resemblance between it and the one in Fig. 5.

Tests made by Prof. H. F. Moore, in charge of the work of the Rails Investigation committee, have shown that rails in service must frequently withstand unusually heavy wheel loads. Nominal, or static, wheel loads of cars and locomotives, commonly amounting to a maximum of 20,000 lb. and 35,000 lb., respectively, may be so increased in ordinary traffic at customary speeds as to result in loads as high as 70,000 lb., the increment, of course, being due to the effects principally of counterbalancing, flat spots on wheels, and the irregularities of track conditions. Probably this is a conservative figure, for rails have been found badly kinked from the evils of counterbalancing conditions alone, which, of course, must mean that the blow, or load, was very great.

Obviously it is easily possible for an unusual load of a passing wheel to synchronize with the locality of a small fissure that has already formed in the rail. The frequency and magnitude of the higher wheel loads of traffic greatly increase these chances, with the result that a sudden, or shock-like, growth of the small fissure may be precipitated. In all probability the location or distance between the growth rings of a fissure is dependent on the extent of the blow, as well as the frequency of its repetition. Complete rupture may then occur as a result of later or additional blows, or the repetition of lighter ones, for fairly small fissures in rails have been made to grow by the repeated blows of a light hammer. However, this rupture may take place before the interval of time that might ordinarily be necessary to polish the fissured surface entirely, with the result that some crystalline metal is still visible between the rings. Detector cars, as already mentioned, frequently locate these fissures that show an arrested development, providing conclusive proof of the sudden or rapid spreading of a fissure that was originally small and no doubt undetectable.

The sudden, or rapid, growth of fissures should not be confused with ordinary, or normal, growth, which is often much faster than expected. The case is well known of a detector car hand test that failed completely to locate definitely the defect indicated, but which defect, 12 hr. later, after the passing of a number of heavily loaded trains, proved to be a 5 per cent fissure and then, though angle barred, grew to be a 20 per cent fissure two weeks later. Likewise, two fissures have lately broken in service five months after the most careful detector car testing had failed to reveal the slightest indication, and which very plainly were the result of a normal growth rather than indicating any inefficiency of the detector car to locate them.

Possibly, and very likely, some unknown condition of the steel of the rail may contribute to the sudden or rapid growth of fissures. It is easily conceivable that growth in the harder, or higher carbon, steels might be more rapid than in more ductile metal. Quite probable also, is the fact that various heats that are seemingly prone to fissure occurrence offer a fertile locale for sudden, or rapid, growth. But the fact remains that the sudden, or rapid, growth of certain fissures can easily be identified by a prompt examination of the fracture. No special training or experience is necessary; merely a study of the condition of the fracture. A post-mortem of this character may easily reveal that neither trackman, nor signals, nor detector cars should be blamed for inefficiency, as the examination may clearly show the suddenness with which some fractures may occur.

Safety Section Meets at St. Louis

Accident prevention must become integral part of railway operation if further reductions are expected

THAT drastic changes in the promotion of safety on railways are essential if still further reductions in accidents are to be accomplished, was disclosed in deliberations at the seventeenth annual meeting of the Safety Section of the Association of American Railroads at St. Louis, Mo., on May 11-13. Concern over the future of the safety movement was emphasized by several speakers and was reflected in reports, which showed increases in casualties in 1936 and 1937. The report of the Committee on Statistics indicated that past practices are no longer effective, for since 1930 the casualty record of employees has remained practically stationary, turning upward in 1936 and 1937, instead of continuing to drop at the rate that prevailed from 1923 to 1929.

The meeting, over which Chairman E. A. Meyer, manager of the safety and fuel departments of the Chicago, Milwaukee, St. Paul & Pacific, presided, was attended by more than 350 representatives of the railways. Officers elected for the ensuing year are: President, E. G. Evans, superintendent of safety of the Louisville & Nashville; first vice-president, F. W. Curtis, supervisor of safety and fire prevention of the Denver & Rio Grande Western; and second vice-president E. R. Cole, assistant to the vice-president of the Erie.

Standardization Needed

While members of the section were conscious of a static condition of the safety movement, they were not without ideas for improving the accident record. Specific suggestions were made by J. R. Tenney, supervisor of safety of the Western Maryland and chairman of the Committee on Trespassing, who said: "The safety movement would be in a position to serve to the maximum extent of its usefulness if its place were defined and its full mission uniformly in process of attainment on all of the railways of the country. Safety departments of many roads are still step-children of railway managements and will be until a definite relationship with regular railway operation is uniformly established and the scope of the safety departments' field of endeavor comprehensively stated so that they can move with a sure sense of direction toward predetermined, uniform objectives.

"Standardization and uniformity are the answer. On some railways, safety officers have executive authority of varying degree, while on others they have no such authority. Safety officers report to a variety of superiors, executive, operating, personnel, claims, legal and others. To accomplish the greatest results, the following suggestions should be standard practice:

- (a) The safety department should be a part of or closely affiliated with the operating department.
- (b) It should not have administrative authority over employees of any other department.
- (c) It should have personnel qualified as operating consultants, so safety may be applied with a full understanding of all technical realities of railway operation.

- (d) It should have the full recognition of the operating department and the right and duty to inquire into every phase of railway operation.

- (e) It should be consulted in the design of tools and appliances of every kind, and the safety equipment of locomotives and cars.

- (f) It should promote a vigorous educational campaign with the full approval of the operating department.

- (g) It should place the burden of responsibility for the enforcement of safety squarely upon the shoulders of the operating department supervision, but should, as a technical adviser, assist the operating supervision to work out definite enforcement plans.

- (h) It should publish regular casualty statistics, broken down according to departments and responsible supervisors, and stimulate competition between various groups as part of the continuing program of maintaining sustained interest.

- (i) It should embrace within the scope of its educational activities the promotion of safety in every possible direction—employees, patrons, trespassers, and public safety as regards both employees and the general public.

- (j) It should recognize and keep continually before all railway officers and employees the fact that unselfish safety promotion can create a more intimate and personal relationship between the railways and their patrons.

- (k) If the safety departments of all railways were similarly organized and fulfilling a uniform mission on every railway of the country, this Safety Section could bring about such standard improvements and refinements from year to year that in the not distant future safety would be a specialized operating science, intimately incorporated into day-by-day operating activities, with universal recognition of its economic as well as humanitarian benefits, and with safety rules enforced on the same basis as all other requirements of railway employment. Intelligent engineering, enlightened safety education, and the application of sound scientific principles must replace evangelistic emotion in promoting safety if fluctuating casualty rates are to be eliminated and relatively low casualty rates consistently maintained."

Trespassing

In presenting the report of the Committee on Trespassing, Mr. Tenney contended that the trespassing problem depends for its solution on recognition of some of the shortcomings of safety organizations. A survey made by the committee on 18 railway systems revealed a wide divergency in approach. The thought that trespassing is not an integral part of a safety officer's job, such as the prevention of employee injuries, seems to prevail universally. The divergence of opinion on anti-trespassing endeavor as part of a safety officer's responsibilities ranges all the way from almost complete recognition of anti-trespass work as a proper field in safety promotion to no recognition of it at all. The committee felt that a duty exists somewhere in railway operation to educate

the trespasser, as a citizen and neighbor, in the danger of being around the railway right of way, and especially to acquaint him with the fact that a trespasser is a law breaker.

The report recommended the creation of a large committee on trespassing, which committee should set up a comprehensive and thoroughly complete program for the elimination of trespassing, working in close relationship with the railway police and looking toward attack on the trespassing problem from every angle. In 1936, according to the report, 2,738 trespassers were killed, of whom 110 were under 14 years of age, 226 were between 14 and 21 years, and 2,402 were adults. This compares with a total of 2,712 trespassers killed in 1935 and 2,654 in 1934.

Discussion of this subject produced several suggestions, and revealed practices that are being used to combat the problem. It was suggested that shippers and industries as well as transportation employees be enlisted in the cause and that greater effort be made to educate children as to the danger present on railroad property. A suggestion made by a Louisville & Nashville employee that the Boy Scouts conduct a non-trespassing campaign was taken up with the national organization by the Safety Section, with the result that the national organization will encourage Boy Scouts to assist in curbing trespassing. The seriousness of the problem of illegal train riders was brought out in the discussion when court records were cited to show that if train employees are friendly to such riders and do not protest their presence on trains, that act condones their presence and the railroad becomes liable for injury or death.

Committee on Statistics

T. H. Carrow, superintendent of safety of the Pennsylvania and chairman of the Committee on Statistics, warned the members against an increase in the rate for all accidents. For 30 years prior to 1924, he said, the accident rate fluctuated according to business. It dropped from 30.9 casualties per million manhours in 1923 to 9.4 in 1930 and 6.8 in 1935, and started up in 1936. The relation between the accident rate and business, he said, is probably due to the fact that laxness among employees is condoned when supervising officers are too busy with increased business to make certain that men are following safety rules. In his report, he contrasted the situation prevailing in 1923 when the safety movement was begun, with that obtaining in 1935, to show the progress that has been made. In 1923, 249 trainmen were killed and 1,626 were injured in train accidents, while in 1935 only 60 were killed and 197 injured. In train service accidents in 1923, 688 trainmen were killed and 34,569 were injured, while in 1935, the number had been reduced to 222 killed and 5,721 injured. Of the causes, operating locomotives is likewise an outstanding example of progress. In 1923, 30 trainmen were killed and 7,949 injured under this cause, while in 1935 the number had been decreased to 11 killed and 827 injured.

The discussion of casualties to trainmen led to the query as to what trainmasters and superintendents are doing to prevent these accidents. The Delaware, Lackawanna & Western employs a "Rule of The Week" plan wherein trainmasters are required to concentrate attention on a specific rule. Some representatives felt that it is impossible for trainmasters to contact all trainmen frequently enough to familiarize them with rules and their meanings, while others took the position that if the trainmaster is interested he can contact his men. According to one safety agent, it is the old men who are getting hurt, the reason being that they continue to

follow old practices instead of adopting improved methods.

Train Accidents

C. H. Longman, assistant to the vice-president and general manager of the Chicago & North Western, discussed train accidents, emphasizing the need for the elimination of negligence of employees which accounts for a large percentage of these accidents. He recommended a rigid enforcement of rules and investigations to determine individual and other underlying factors. Of the 8,326 accidents in 1936, he said, 2,456, or 29 per cent, were due to negligence of employees, 3,411 were due to defects in or failure of equipment, 1,004 were due to defects in or improper maintenance of way and structures, and 1,455 were due to miscellaneous causes.

During the discussion of train accidents, excessive speed as a contributing factor to accidents was considered. It was the opinion that if supervisory officers insist upon adherence to operating rules, especially in restricted speed territories, fast speeds required in making up lost time will not be the cause of accidents. That excessive speed is not a growing factor in accidents is shown by the statistics. In 1925, there were 20 fatal injuries due to excessive speed, while in 1936 there were only 4.

Another subject of debate was the matter of discipline. Some contended that it must be administered when rules are violated. Mr. Longman took the position that other methods can supplant discipline, demonstrating his point with numerous cases on the North Western wherein violations of rules were eliminated by other methods and by proper supervision. The National Railroad Board of Adjustment which is now passing on discipline, was cited as an agency which might make it impossible for officers to discipline employees. In several cases this board has ruled against railway officers and relieved employees of disciplinary penalties. Another handicap imposed by this board is that which provides that only the present case of misconduct can be used in determining the degree of discipline. The members felt that the past record of a man, either good or bad, should be a factor in fixing discipline, for if his past bad record can not be used, consideration of his past good record can not be justified.

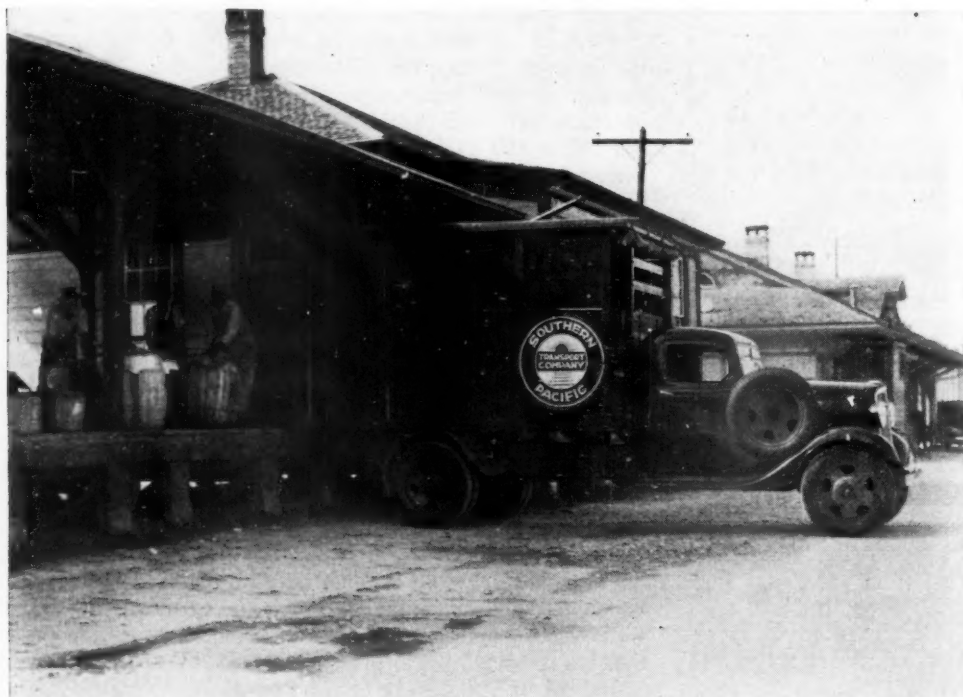
Train Service Accidents

The report of the Committee on Train Service Accidents, of which F. W. Curtis, supervisor of safety of the Denver & Rio Grande Western, is chairman, showed a substantial increase in train service accidents in 1936. A total of 4,897 employees and non-employees were killed, and 18,045 were injured in 1936, as compared with 4,650 killed and 15,535 injured in 1935. In discussing the causes of these accidents, the report called attention to the fact that operating switches, while causing no deaths in 1936 as compared with two in 1935, resulted in injury to 310 persons as compared with 186 for the preceding year. The total of injured was the highest since 1930. The increase in 1936, the report said, may be due to the recall of trainmen recently cut off and the influx of new men which was especially marked last year.

Highway Crossing Accidents

The report of the Committee on the Prevention of Highway Crossing Accidents, of which H. A. Rowe, manager of the claims department of the Delaware, (Continued on page 881)

Motor Transport Section



One of the Southern Pacific's Contract Transport Trucks Loading Freight at Houma, La.

Transport Company Regains Traffic in Evangeline Land

Southern Pacific, Louisiana lines, successfully combats various forms of competition

FOR various reasons, the Southern Pacific lost a considerable portion of its merchandise traffic in the fertile and productive territory which it traverses in southern Louisiana. However, in the last few years, by establishing a co-ordinated rail-contract trucking system closely identified with the railway and thereby affording shippers and receivers a much better service on l.c.l. traffic, this business has been regained and the volume of such traffic handled is steadily increasing.

The southern Pacific parallels the Louisiana Gulf coast at a distance of from 25 to 50 miles, and has, in addition, numerous branch lines serving this territory. This particular section produces a wide variety of products; sugar cane, rice, early vegetables, furs and salt, the production of which amounted to 541,882 tons last year, and, in turn consumes a wide variety of manufactured products. These are large industries, the fur business alone averaging six million dollars annually. There are also a number of large cattle ranches in the territory.

The Southern Pacific runs closer to the coast than any of the other railroads serving this area, and has

always had to compete with water competition, via the Gulf of Mexico, and through the numerous bayous, rivers and lakes. Such competition, however, was being met, as the boats were usually compelled to use round-about routes, and it did not assume alarming proportions until the completion, some years ago, of the Intercoastal canal, an artificial waterway connecting the various natural streams and lakes, and affording a direct water route to most of the points served by the S. P. This competition was felt particularly keenly at the off-line points between the railway and the coast.

At about the same time, highway competition made itself felt. Practically every point along the railway was being served by independent truck lines, and here again the competition was keen at the off-line points in the contiguous territory, as the truck lines could serve these points directly, which the railroad could not do, except by making use of highway equipment.

A third factor mitigating against the railway was the rate situation. The decision in the Natchez rate case, which was the subject of much litigation some years ago,

results in a general raising of the rate level on merchandise from New Orleans to other Louisiana points. This also increased the difficulty of securing merchandise traffic for the railway.

How Business Was Regained

To meet these conditions and to regain the lost traffic, the S. P. formed the Southern Pacific Transport Company of Louisiana. The solicitation and handling of all intrastate merchandise in Louisiana was placed in charge of officers of this company, who are officers of the railway as well. One of the first steps was a general rate adjustment to meet the existing competitive conditions. Then the service was improved until now the transport company provides the equivalent of express service, with collection and delivery, at freight rates.

The transport company began operations in a limited, experimental way, between New Orleans and Morgan City, in April, 1932. Since that time, the operations have been extended to cover all the rail lines in Louisiana, as well as the adjacent territory from the rail line south to the gulf.

The accompanying map shows the S. P. rail lines in southern Louisiana, and indicates the extent of the off-line service in the six coastal parishes, in which every important community is served by a truck line under contract with the Southern Pacific Transport Company of Louisiana. This area represents one of the greatest expanses in the country without direct rail service, and is certainly the most populous of such areas. The district is unlike any other part of the United States in that, frequently, the farms are in the shape of long, narrow strips. This is particularly true on the Bayou La Fourche. The highway along this bayou is known as "the longest street in the world."

For 90 miles along the highway and the bayou, there is an unbroken chain of houses, stores, fish packing plants, etc., with an occupied building of some sort every few hundred feet. This was brought about by the desire

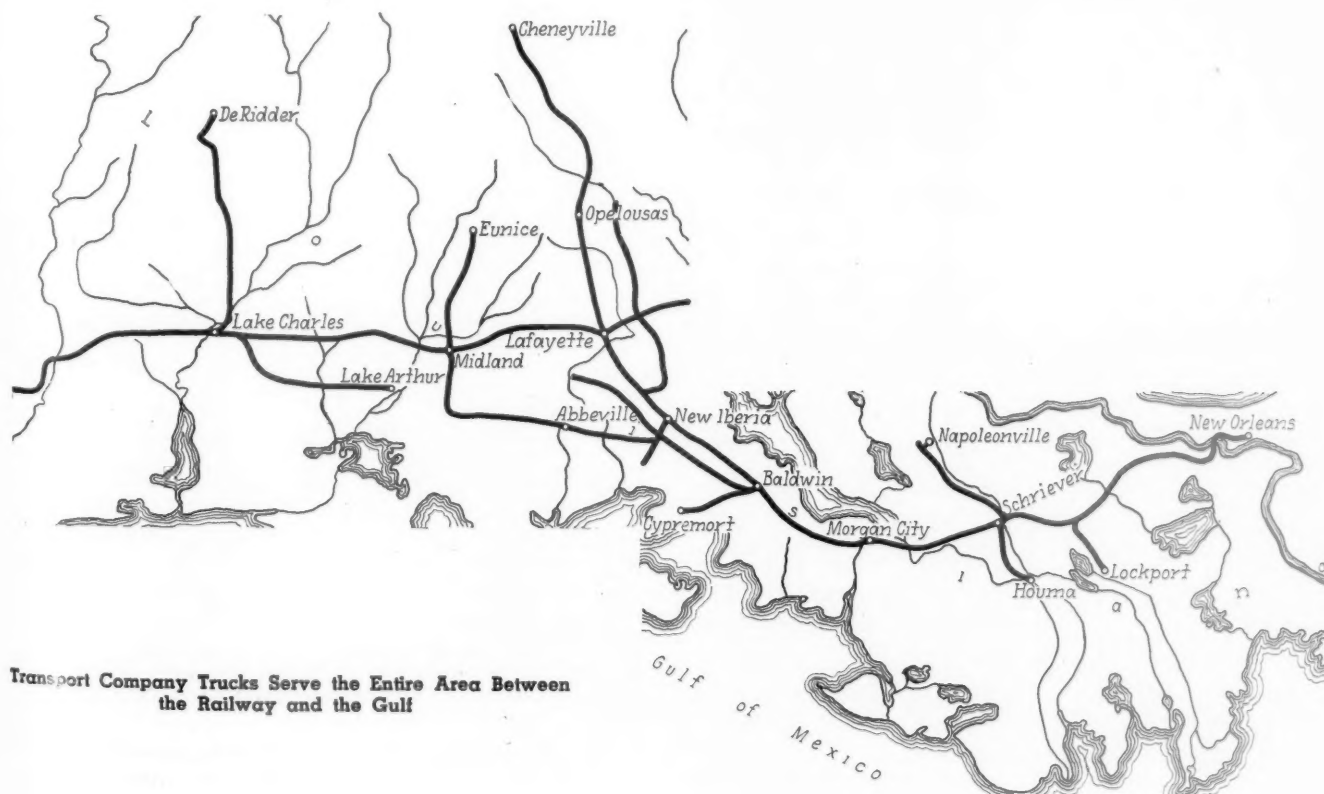
of each of the early French settlers to have water frontage and rights on the bayou, resulting in farms only a few hundred feet wide, but frequently extending as far as a mile back from the bayou to the swampland. Naturally, this and other settlements of the same nature can best be served by highway transportation, and since the Southern Pacific is providing such efficient and dependable service, the lost business has been regained and the volume of merchandise handled is constantly increasing.

Success of Operations

The success of these co-ordinated rail-highway operations may be estimated from the fact that the transport company now has 445 trucks under contract, while first morning delivery, with pick-up and delivery service, is provided at 504 communities in Louisiana. The merchandise is loaded out of New Orleans in cars that are set out at strategic points along the line.

Many of the truck routes are operated in both directions from these rail delivery points, paralleling the railway and serving the local stations where shipments are not set out, thus avoiding many local stops for the trains handling the merchandise, and permitting them to be operated on the fast schedules necessary to permit of first morning delivery to all Louisiana points on the S. P. With the number of set-outs that must necessarily be made, and the further fact that some of the stations along the Texas-Louisiana state line are 250 miles and more from New Orleans, the elimination of many of the local stops by the use of trucks is essential, if the train is to reach the farthest points in time to permit the freight to be unloaded from the cars, placed on the trucks and delivered early the first morning after leaving New Orleans.

In addition to the truck routes paralleling the main line, a number of other trucks operate south from the railway into the coastal territory. In all, the transport company operates 45 such truck routes in Louisiana, and, by covering every important highway in the coast



Transport Company Trucks Serve the Entire Area Between the Railway and the Gulf

parishes with these truck lines, first morning delivery is provided throughout the territory. This is true even in the case of many communities, largely fishing villages, that are not on the highway. Merchandise reaches these points from New Orleans via the railway to the set-out points, via truck to the point on the highway nearest the destination, and thence via motor boat, or, in some cases, skiffs, to the receiver.

The traffic for the transport company is solicited by

the regular S. P. traffic force. However, as is only natural, the success of the rail-highway operation has materially increased the interest of these men in the solicitation of merchandise freight. The solicitation of such traffic is further supervised by the general freight agent of the transport company, who receives separate reports from each solicitor weekly as to the amount of less car load traffic which is secured in his territory.

Express Trucks For Railway Service

Canadian Pacific Express Company takes over
handling of merchandise for parent
railway at several points

THE Canadian Pacific Express Company, effective May 1, has taken over the merchandise handling for its parent railway at Montreal. Hitherto, the Canadian Pacific has been handling its trucking services under contract with various outside haulage companies, but in March of this year, experimental operations were begun by its express company at Ottawa, Ont., and Sherbrooke, Que., where the business of the Quebec Central is also handled. These experiments proved so successful that it was decided to handle the merchandise in the Montreal terminal in a similar fashion, and a fleet of 92 new trucks of various makes has been purchased by the express company for use solely in this type of service for the railway. Six new trucks are handling the cartage service at Ottawa and two at Sherbrooke.

Type of Service

The methods formerly employed by the Canadian Pacific in handling merchandise in the Montreal terminal to speed up the service on the fast trains operating to and from that city were described in detail in the Motor Transport Section of the *Railway Age* of March 27, page 556. In this article it was shown how increases up to 300 per cent had been secured in merchandise traffic by faster train service in the Montreal area. The new fleet will take over this trucking service in its entirety, and it is expected that even more prompt service will be afforded to shippers and receivers by this means.

Because of the topography at Montreal, the terminal handling and collection and delivery of l.c.l. freight have always presented numerous problems. The city is situated on a mountainous island, and the various wholesale, jobbing and manufacturing districts are scattered about on various levels, the St. Lawrence river and other streams presenting additional handicaps. Freight stations were established at various points in the city from which the freight was handled by trap car to the central yard at Outremont. This yard is situated on the opposite side of a mountain from the principal manufacturing and distributing centers and handling these trap cars to it from the outlying freight stations via the necessarily

circuitous routes imposed by the rough terrain was a cumbersome and expensive process at best. In addition, when highway competition began to make itself felt, the rail service was so much slower than the service offered by over-the-road trucks that much of the merchandise traffic was lost.

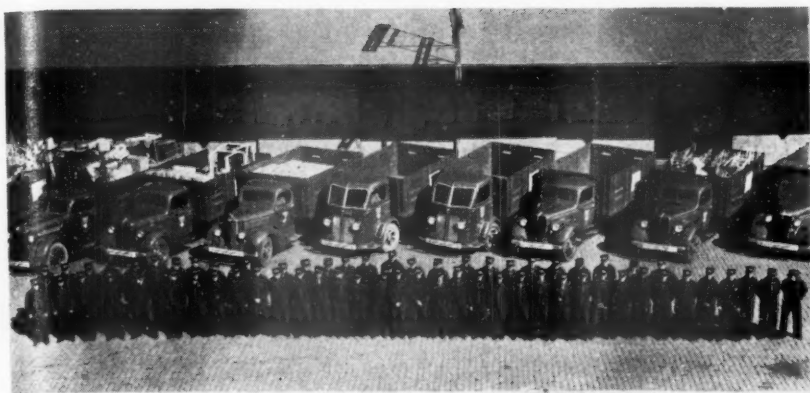
To meet the situation, it was decided to concentrate the loading of merchandise into freight cars for road movement at the Place Viger freight station, which is situated near the river adjacent to the Canadian Pacific docks. As much of the freight as possible is trucked directly from the shippers to Place Viger. Merchandise is still accepted, of course, at the outlying freight stations, but this also is trucked to Place Viger instead of being handled in trap cars, as was previously the case.

Function of the Trucks

The new fleet of express company trucks will take over this cross-city highway service, as well as handling all the collection and delivery service for the railway in Montreal. In addition, certain of the trucks will be used in inter-city runs up to 30 or 40 miles to and from outside points, to provide these stations with the same speedy service that is afforded Montreal. Freight from these inter-city routes will also be concentrated at Place Viger station for outbound movement.

The new trucks are of heavy types, from two to five tons, and were built specially for the handling of this type of freight cartage, both inbound and outbound. They will also be used in the handling of carload freight on the occasions when they can render better service than could be effected by switching movements within the terminal area. They will be operated entirely separately from the existing fleet of trucks which provides Montreal with express service. Even their maintenance and storage will be handled separately, as the new fleet is to be housed in a modern garage and workshop now in the course of construction near the Place Viger freight sheds. It is expected that this building will be ready for occupancy in July.

The new service is being widely advertised to shippers and receivers by means of posters and direct mail, as



Views Showing Part of the Canadian Pacific Fleet of 92 Trucks Purchased to Provide Better Service for Shippers and Receivers of Merchandise in Montreal.

well as other advertising media. The trucks are painted a bright green and carry the Canadian Pacific emblem, as well as signs indicating the purpose they service. The drivers are uniformed in blue, and wear uniform caps bearing the nameplate of the Canadian Pacific. A special office, known as the Canadian Pacific Cartage department, has been set up for handling the operations of the new fleet and for serving the shippers and receivers of merchandise traffic.

Plans are now under way to inaugurate a similar service at Three Rivers, Que., with two trucks, and at Saint Hyacinthe, with one truck, on June 1. These trucks have already been bought, bringing the total of the new fleet already purchased by the Canadian Pacific to 103 trucks. The service will be extended to other points on the system as the occasion demands.

Chevrolet Test Run

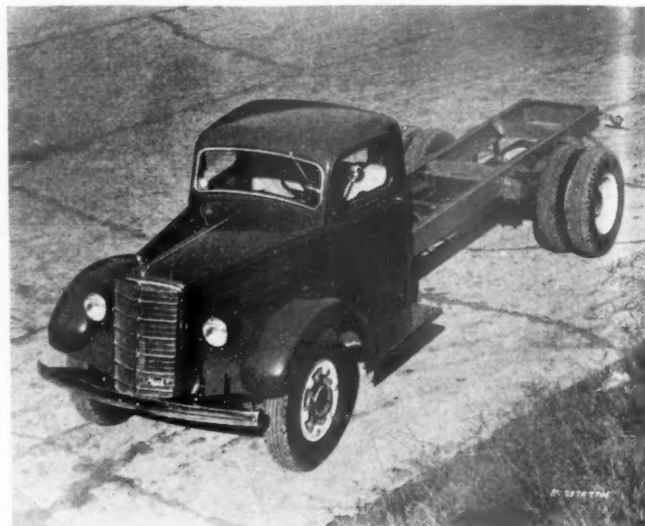
A TEST run, involving a 10,000-mile trip around the edge of the United States, has just been completed in a stock Chevrolet half-ton truck. A 1,000-lb. pay load was carried and the following log of the trip shows the results obtained:

Total mileage of the run....10,244.8 miles
Total gasoline consumed....493.8 gallons
Total oil consumed.....7.5 quarts
Gasoline mileage.....20.74 miles to the gallon
Oil mileage.....1,365.9 miles to the quart
Total cost per vehicle mile...\$0.0098— $\frac{98}{100}$ ths of a cent
Average speed for trip....31.18 miles per hour
Total fuel cost.....\$101.00
Total cost parts and repair...\$0.73

Among other records, the truck covered the 2,780 miles from Los Angeles, Cal., to Jacksonville, Fla., in 85 hr. 15 min. on 131.9 gal. of gasoline, an average of 21.08 mi. per gal. The truck was driven by Harry Hartz, the racing driver, with Stanley Reed of the American Automobile Association as observer.

New Mack Truck and Tractor Models

THREE new Mack truck and tractor models, the EM rated at 20,000 lb. gross, the EQ at 23,000 lb. gross and the EJ at 16,000 lb. gross, have just gone into production. In the modern streamlined styling of the new models, the fenders are full-crowned



One of the Latest Model Macks

and creased, with high valleys between the fenders and the hood. The radiator grill is chromium plated and sloping. Chromium plating is also used extensively on the windshield frame, louvre trimmings, hub caps and bumpers.

These three models are being offered in four standard wheelbase lengths, ranging from 146 in. to 194 in. for the truck, and in three wheelbases, from 141 in. to 158 in., for the tractor. The EJ is the lightest truck yet built in the regular Mack line.



The Chevrolet Truck That Skirted the United States

Rail-Highway Transport Fast Becoming a Major Industry

Amount of equipment owned increases rapidly and
operations now cover the country

THE widespread operations of rail-highway transport have been increasing so rapidly in the last few years that an accurate summation of their extent has been difficult. It is still difficult insofar as the contract arrangements of the railways with private highway transport companies are concerned. However, a reasonably accurate survey of the entire field is now possible and is contained in the accompanying table which includes all highway subsidiaries entirely or principally owned by the railways as of May 1, 1937. It does not include contract operations, although a summary of some of the principal operations of this character is appended.

It will be noted that 78 railways own 5,274 passenger vehicles and 17,550 freight vehicles, operating in every state in the Union. These figures do not, in general, include the motor trucks operated by the railways in non-revenue service, such as for the stores, mechanical and maintenance departments. This represents a large and constantly growing truck market in the railway field.

Contract Operations

In this phase of rail-highway co-ordination, accurate figures are not available, since many thousands of trucks are contracted for by the railways on a part-time basis. In other cases, the contracts are for full-time operation, but the division of such figures as between part-time and

full-time trucks has been doubtful, and correct figures cannot be arrived at, as yet.

However, among the larger contract truck fleets engaged in full-time railway service are the following:

Boston & Maine	130
Chicago, St. Paul, Minneapolis & Omaha	250
Pennsylvania	2,816
Southern Pacific	445
Erie	252
Missouri Pacific	44
Other Van Sweringen lines	275

In contract trucking operations, the amount of control exercised by the railways varies considerably. In the majority of cases, the trucks are identified with railway markings, and railway officers supervise the operations. In other cases, the drivers are railway employees who own and operate the trucks for the railway. One of the most interesting developments in connection with contract trucking recently has been the intensive and increasingly successful effort of the Railway Express Agency to take over these contract operations for the railways.

New activities in the railway motor transport field are a matter of almost daily occurrence, and developments materialize extremely rapidly in this field. The latest example is the Illinois Central, which railway plans the establishment of rail-highway co-ordination involv-

Rail Ownership of Highway Vehicles

	Passenger Vehicles	Freight Vehicles		Passenger Vehicles	Freight Vehicles
Alabama & Western Florida	2	1	Lake Superior & Ishpeming	2	1
Arlington & Fairfax	21	1	Lehigh & New England	8	4
Atchison, Topeka & Santa Fe	279	246	Lehigh Valley	36	12
Atlanta, Birmingham & Coast	1	1	Long Island	5	14
Atlanta & St. Andrews Bay	7	3	Maine Central	36	4
Atlantic Coast Line	2	1	McCloud River	2	.....
Augusta Northern .....	.....	1	Minneapolis, Northfield & Southern	5	.....
Baltimore & Ohio	110	48	Missouri-Kansas-Texas	9	7
Bessemer & Lake Erie	2	2	Missouri & Kansas .....	.....	4
Boston & Maine	90	19	Missouri Pacific	138	10
Cambria & Indiana	1	1	Monongahela .....	.....	4
Central of Georgia	4	3	Montana, Wyoming & Southern	1	1
Central of New Jersey	8	8	Nevada Central	9	3
Chicago, Attica & Southern .....	.....	1	Nevada County	2	3
Chicago, Burlington & Quincy	143	125	New York Central	346	20
Chicago, Indianapolis & Louisville	6	3	New York, New Haven & Hartford	1,097	482
Chicago, Milwaukee, St. Paul & Pacific	5	.....	Norfolk & Western	9	22
Chicago, North Shore & Milwaukee	18	.....	Norfolk Southern	25	2
Chicago, Rock Island & Pacific	8	.....	Northern Pacific	345	93
Chicago, St. Paul, Minneapolis & Omaha .....	.....	80	Pacific Electric	295	58
Chicago, South Shore & South Bend	11	27	Pennsylvania	398	230
Colorado & Southern	11	.....	Peoria & Pekin Union .....	.....	2
Cumberland & Pennsylvania	3	4	Pittsburg, Shawmut & Northern .....	.....	12,343
Dardanelle & Russellville	4	2	Railway Express Agency	52	95
Delaware, Lackawanna & Western	2	17	Reading	3	3
Delaware Valley	5	2	Richmond, Fredericksburg & Potomac	204	145
Denver & Rio Grande Western	66	34	St. Louis Southwestern	82	13
Dequien & Eastern	1	.....	Seaboard Air Line	13	.....
Detroit & Mackinac	1	2	Spokane, Portland & Seattle	3	240
Duluth, Missabe & Northern .....	.....	1	Southern	424	412
East Broad Top	8	1	Southern Pacific Lines	2	.....
East Tennessee & Western North Carolina	10	50	Tennessee, Alabama & Georgia .....	.....	6
Fonda, Johnstown & Gloversville	13	1	Toledo, Peoria & Western .....	.....	1
Georgia	1	.....	Union	477	35
Great Northern	235	11	Van Sweringen Lines	16	2,573
Gulf, Mobile & Northern	8	5	Virginia & Truckee	1	.....
Hillsboro & Northeastern .....	.....	1	Western Maryland .....	.....	3
Huntington & Broad Top Mountain	2	1			
Kansas City Southern .....	.....	2			
Key System	147	1			
				5,274	17,550

ing the use of nine railway-owned trucks in the vicinity of Centralia, Ill., as soon as permission can be secured from the Illinois Commerce Commission. Almost every railway is at least studying the problem, spurred on by the success of others in regaining merchandise freight. Many are planning experimental operations to determine the type of co-ordination best suited to their needs. With the number of new truck and bus operations established in the first five months of this year, and the number of railway applications now before the Interstate Commerce Commission for permission to purchase highway companies, 1937 promises to be another record motor transport year, as far as the railways are concerned.

Rail-Highway Co-ordination in Florida

THE railways in Florida, in conjunction with the Tamiami Trail Tours, have entered into a joint bus-rail arrangement to give the tourist an opportunity to see more of Florida. On all round trip rail tickets from the North to Miami, reading via the Florida East Coast or the Atlantic Coast Line, the passenger may, at his option, use the Tamiami Trail Tours motor coaches between Miami and Tampa.

This route, operating over the Tamiami trail, enters the Everglades National Park shortly after leaving Miami, and traverses the northern section of this hitherto little known park. Reaching the Gulf of Mexico at Naples, the bus route proceeds north along the west coast of the peninsula, via Fort Myers, Punta Gorda, Venice and Sarasota to Bradenton. From this point, the passenger may proceed on the mainland directly to Tampa on the highway following the east shore of Tampa bay, or cross the mouth of the bay to St. Petersburg by bus ferry, thence via the seven-mile Gandy bridge and causeway across the western arm of the bay into Tampa.

Two through bus schedules are operated daily in each

direction by the Tamiami Trail Tours on this 277-mile run, which is made in approximately eight hours. The A.C.L. and the F.E.C. also have an arrangement with the Florida Motor Lines providing for the acceptance of round trip rail tickets by the bus lines in one direction between Miami, West Palm Beach, Lakeland, and the west coast cities.

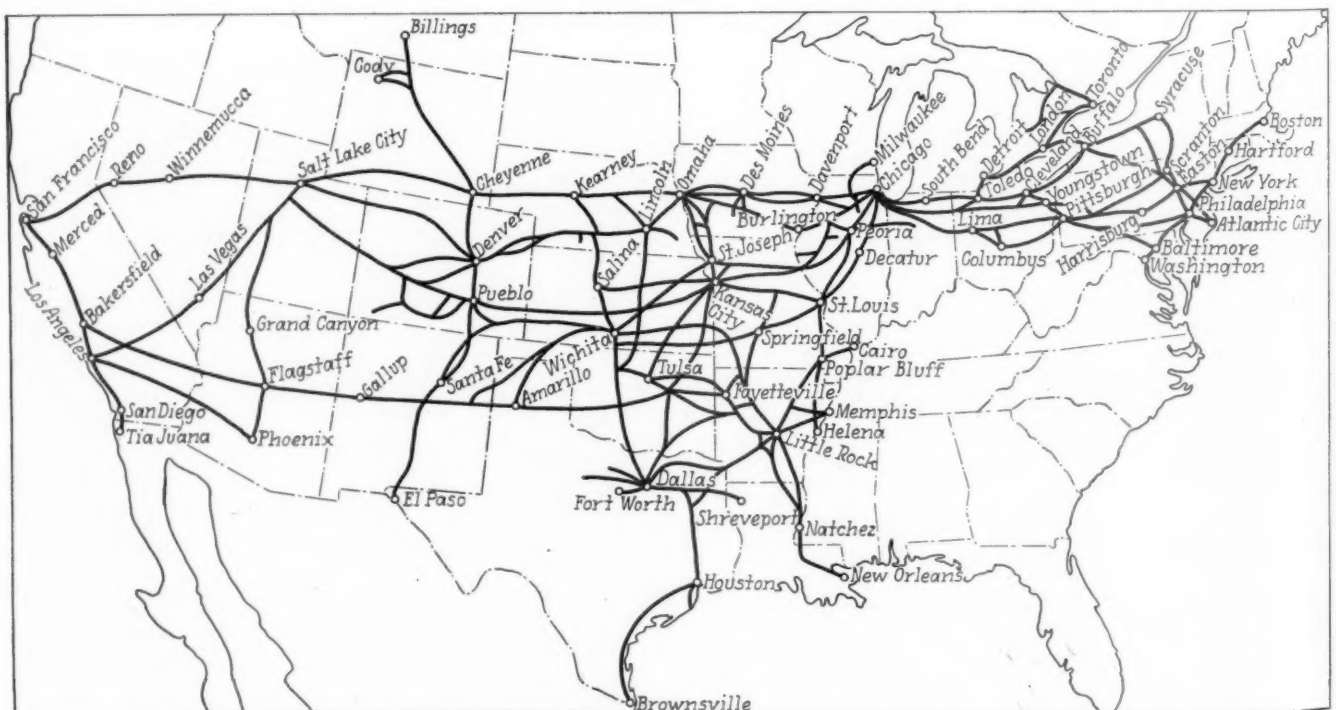
The Seaboard Air Line, which has a rail line between



Transferring Passengers from Rail to Bus in Florida

Miami and Tampa, does not enter into this arrangement. However, this railway and the Tamiami Trail Tours have a joint contract whereby S.A.L. tickets are honored by either the railway or the bus line between Tampa and seven important resorts on the lower west coast of Florida, as far south as Naples. The S.A.L. also has an arrangement with the Florida Motor Lines providing for a daylight cross-Florida service between Miami and Tampa and points on the St. Petersburg peninsula. Through sleepers are operated in this cross-Florida service nightly via the rail line. For the day service, however, passengers board the through Miami-New York train in Miami in the morning and transfer to Florida Motor Lines buses at West Lake Wales at 1:30 p.m., proceeding by highway to Tampa and other west coast points. In the reverse direction, buses leave the west coast cities in the morning, connecting with the New York-Miami train at West Lake Wales at 12:40 p.m.

* * * *



Formed Just a Year Ago, the National Trailways Now Covers the Country with Its Affiliated Bus Lines

Buses to Carlsbad Caverns

AN interesting example of the possibilities of rail-highway co-ordination in opening the natural wonders of the west is provided by the Carlsbad

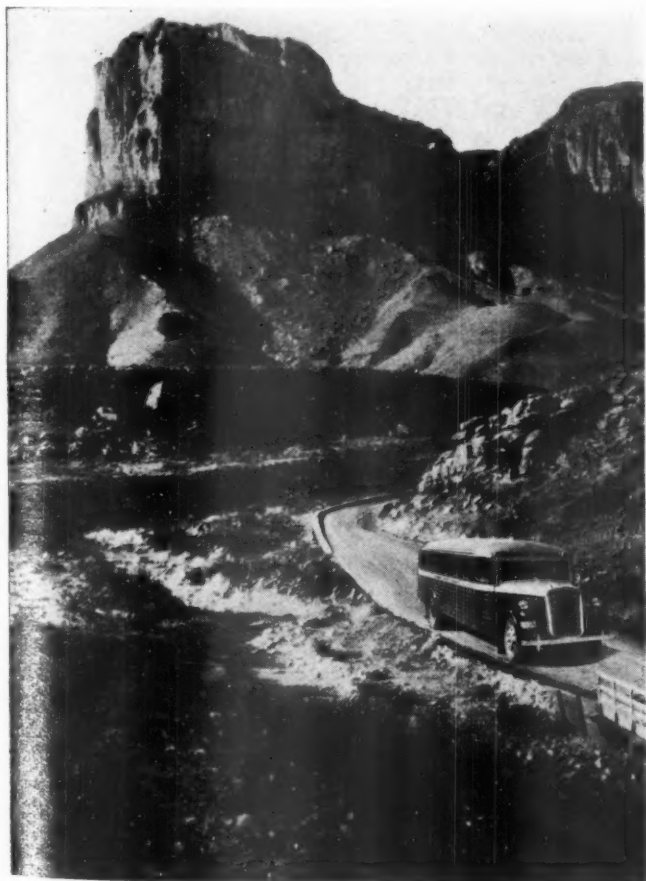
transcontinental rail tickets at a small extra charge which will permit the traveler to break the train journey at El Paso, and visit the Carlsbad Caverns. The coach company provides three tours daily, one leaving El Paso at 6:45 a.m., and another at 9 a.m., both returning at 7:15 p.m. the same day. The third tour leaves El Paso at 3:30 p.m., and permits one to spend the night at



Modern Equipment Is Used for the Carlsbad Detour

Caverns Coaches, a bus service out of El Paso, Texas, in connection with the Southern Pacific and Atchison, Topeka & Santa Fe. Coupons may be purchased with

Carlsbad, with a trip to the caverns the following day, returning to El Paso at 7:15 p.m. the second evening. These schedules have been worked out to establish close connections with important trains of the S. P. and the Santa Fe. The equipment consists of modern, streamlined coaches and sedans.



Scenic Beauty Enroute to the Caverns

Safety Section Meets at St. Louis

(Continued from page 873)

Lackawanna & Western, is chairman, showed that 1,786 persons were killed and 4,930 were injured in grade crossing accidents in 1936, the number of fatalities representing an increase of 106, or 6.3 per cent, compared with 1935, and being greater than in any year since 1931. Particular attention was directed to derailments in crossing accidents involving motor vehicles. In 1936 there were eight such accidents, in which 37 passengers upon trains were injured, 5 railroad employees killed, 8 employees injured and 18 other persons killed and 4 other persons injured.

The report also showed that of 2,882 grade crossing elimination projects included in the federal government work program, 955 had been completed on December 31, 1936, at an estimated cost of \$46,429,767. A total of 1,179 such projects, costing \$107,644,828 is under way, while 748 have been approved for construction, at an estimated cost of \$18,606,144. While these expenditures will undoubtedly continue and may be regarded as a most suitable outlet of public funds for the common good, the report said, too much cannot be expected in crossing accident prevention by such eliminations, for there still are 234,231 crossings, each of which presents a potential hazard.

The situation in 1937 will need particular attention, according to Mr. Rowe, for in January 170 persons were

killed and 458 injured, as compared with 164 killed and 444 injured in January, 1936. According to Mr. Rowe, the cost of these accidents to railroads is high and if the cost of one accident were used in prevention work, it would save 500 lives. The solution to the grade crossing accident problem, he said, is to weed out unfit drivers. To eliminate the increasing number of accidents at highway crossings when two trains pass, he recommended the adoption of a signal to indicate the presence of two trains.

The discussion of crossing accidents revealed the dire need for a uniform driver's license law. Such laws have been enacted in 30 states but are not standard and few are strong enough to produce the desired results. The enactment of such laws, however, was considered a forerunner of more effective laws in the future.

Among others addressing the meeting were Col. R. S. Henry, assistant to the president of the Association of American Railroads, W. H. Cameron, managing director of the National Safety Council, and Lew R. Palmer, conservation engineer of the Equitable Life Assurance

Society of the United States. Mr. Cameron outlined the progress of safety in foreign countries observed while he attended the International Safety Conferences in London, Amsterdam and Paris, and discussed some of the heretofore untouched fields of safety. Mr. Palmer discussed the safety awards of the National Safety Council and the increasing number of accidents.

Colonel Henry spoke of improved public relations, saying the remarkable improvements in railroad operation made in the past 15 years have renewed public interest in railroads and their services. The enhanced safety, the greater comfort, the increased speeds, the lower fares and the added refinements of passenger service, he said, stand in the public mind as symbols of advanced railroading. Of all the elements in the records of performances attained by the railroads, however, none had had a more favorable effect upon the public mind than their record of safety. Mr. Henry also discussed water competition, air line subsidies and taxes. He summarized his remarks by saying that all the railroads desire is equality of opportunity.

Communications . . .

The Railway Age cannot publish letters from readers who do not supply their names and addresses. Names of correspondents are not published, or disclosed even upon inquiry, unless the correspondent consents. But they must be given us as an evidence of good faith.

"Step-child" Joint Service Fosters Public Bitterness

TO THE EDITOR:

While I am no relative of Mr. Franklin Snow, despite the similarity in names, I fully agree with his suggestion (*Railway Age*, May 1, page 761) that the railroads make some effort to give round trip rates on different routes going each way. Even in the East where the scenery isn't so much, people from the Middle West would probably like to get a little variety and that would help to stimulate interest in rail travel.

At the same time, the railroads might call off their efforts to divert traffic from one line to the other to the detriment of the people who live along the lines affected. I have one road in mind which operates over two routes between two large centers of population. One of these routes uses its own tracks exclusively. The other involves joint service with another carrier. In recent years the road has done all it can to favor its own route at the expense of the joint route. The latter gets older equipment, more local stops, longer delays at terminals. This does not interfere with the through traffic between the large cities at the two terminals, but local population centers on the joint line are suffering more and more in accessibility by train in comparison with cities which lie on the favored route.

One good way to further the sentiment for government ownership is to carry on in this manner. No matter what the drawbacks would be under government ownership, such a situation as this would certainly be abolished, or at least service would be leveled down or made approximately equal. This spirit is the same one that prevents the railroads from getting together on the round trip method suggested by Mr. Franklin Snow.

Nobody can blame the railroads for cutting service to approximately match the amount of business available if, in the rush to cut losses, they don't precipitate greater ones and actually drive away what might be a profitable volume of traffic. The case I mention, however, is not like that because

there are actually as many trains, and well patronized, on the joint route as there are on the other.

Before making too much complaint about drives for government ownership, the railroads should make very sure that there are no sore spots in their handling of traffic which help to promote ill-feeling and dissatisfaction which, no matter what they say about it, would certainly be somewhat changed if the lines were all under one head.

G. A. SNOW.

Train Limit Bill and Investors

GORHAM, ME.

TO THE EDITOR:

Enclosed is an editorial* from the Boston Herald of May 14, 1937, which you may be interested to note. This is an admirable editorial which, I believe, states the exact situation.

From the point of view of an unfortunate stockholder, it seems to me useless for you to stress in your editorials that if the brotherhoods force the railroads to pay trainmen excessive wages and employ more trainmen than are needed, the railroads cannot expand and employ more men in the aggregate. The brotherhoods will pay no attention to that. The trainmen who are employed regularly are highly paid now. The increase they now demand is unjust to the stockholders, who have in many cases seen their stock depreciate in value to a fraction of its cost.

The latest demand for a 20 per cent increase, the rail executives, in fairness to the investors, should firmly refuse. There should be appointed a government commission to fix wages in such disputes and no strikes should be allowed. Will you inform me how the stockholders and ultimately the bondholders are to be protected, if this is not carried out? The railroad executives have demonstrated that they cannot protect the investors when the brotherhoods make demands, thus proving their incompetence in labor disputes. Where, unless before an impartial governmental commission with penal power, can the railroad investor get protection for his investment?

—RALPH C. STONE.

*The editorial referred to above points out that the train limit bill now before the Senate is "utterly indefensible," because: 1. No public hearings have been held for the protection of interested parties; 2. No proof has been given that such a measure is necessary for safe operation.—EDITOR

Odds and Ends . . .

Tornado Changes Trade Mark

The trade mark of the Florida East Coast used to be a scene on the railway crossing the southern Florida keys. The tornado of a few years ago, which blew the Key West extension into the Gulf of Mexico, has caused a change to be made in this trade mark, which now shows waving palms and tropical sands instead.

Dinosaur Track

The Boston & Maine claims some sort of record in the finding of a number of dinosaur tracks, made by these prehistoric monsters fifty million years ago, more or less, along the right of way of its Connecticut River division. The huge rock containing the tracks has been dug out and will be placed on exhibition at North Station, Boston.

Ghost Railroad

On February 1, 1937, under authority of the Interstate Commerce Commission, the Nashville, Chattanooga & St. Louis ceased operations on its 12-mile branch between Rock Spur, Tenn., and Ravenscroft, since the mine it was built to serve was abandoned some time ago. Shortly after operations ceased, the Tennessee Products Company, owner of the abandoned mine, decided to salvage the machinery as junk—50 carloads of it. It applied to the railroad for one last train to haul the junk and the railroad applied to the commission. The commission's records, however, show that there is no such railroad and permission was refused. It is probable, however, that, after sufficient testimony is presented and sufficient red tape unwound, the shipment will be made.

Paying Fares

Railroad ticket agents in Great Britain find that there are even fashions in paying rail fares. Five and ten pound notes are the vogue on the business men's expresses to London. Passengers from Ireland, transferring at Fishguard, invariably offer currency notes of the Irish Free State which have the same face value as those of Great Britain. The threepenny bit is the most popular coin in Wales, the agents at Welsh stations handling hundreds of them each day. English ticket offices, however, may not see one in a month. The sixpence and the shilling are the most popular coins of England, although the half crown is rapidly increasing in favor. Double florins, massive crowns, coins minted in the reigns of the early Georges still are presented for a ticket on the lines of the British railways. The sovereign, once the pride of English coinage, has practically dis-

appeared and has only rarely appeared at ticket offices since the days when the country went off the gold standard. It would be interesting to know what the most "fashionable" coinage is for buying tickets in this country.

The Historic Hat

For 31 years Bill Hawker has been a machinist in the shops of the Canadian National at Edmonton, Alta. For 31 years, Bill Hawker, day in and day out, wore an old, battered black hat at



his work. Now, after 31 years of continuous service, Bill Hawker has retired on pension. But his hat remains in the shops. When Bill left, his hat was raffled and it was won by Harry Neate, a fellow mechanic, who has hung it in an honored spot above his bench.

* * * *



One of Two Welded Steel Evaporator Towers Recently Handled by the Chicago & Eastern Illinois on Special Cars Having a Capacity of 212,000 Lb.

NEWS

Boating Excursion Popular With Press

Papers send 60 reporters and camera men to "cover"

N. H. venture

The first "fold-boat train" in America ran 110.6 miles from New York to Falls Village, Conn., on Sunday, May 16, when the New York, New Haven & Hartford, added another sports-train event to its bicycle and ski excursions.

Long before 7:45 a.m., when the special train was scheduled to leave Grand Central Terminal, the party of 200 had begun to assemble. By 7:30 there had been a succession of flashlight photographs, a five-piece Bavarian band noisily enlivening matters and a large crowd just moving about looking on. Close-up pictures were taken of the first fold-boaters to go through the gates, and "faltbootpaddlyn" (long popular in Europe) or plain "rubber-tubbing" got its official start in this country. The train had three coaches for the cash customers and two for the reporters, two dining cars, a baggage car to haul the boats and a bar car. Sixty representatives of New York newspapers, including business papers and magazines, picture services and newsreels, were on hand to record the day's activities.

Upon arrival at Falls Village, passengers received the packs containing the boats from the baggage car and carried them to the river bank. For some, the assembling of sticks and rubber-covered canvas took longer than two hours. Others, more familiar with the art, completed the job sooner. Finally, 75 gay-colored craft had taken to the water for the 18-mile paddle down the Housatonic to Flanders. Reports of the goings-on had spread through the countryside and inhabitants grouped themselves along the river to watch the fun. There was great interest at West Cornwall, where the fold-boaters encountered swift rapids and several of the boats capsized.

The train followed the progress of the boats (the tracks paralleling the river). At Flanders, where the boating ended, a small encampment of boat men had taken possession before the train pulled in. Those aboard, the reporters, passenger representatives, the enginemen, the road foreman and four white-coated porters, observed with interest the two hours of activity in packing the boats for the return journey, the band accommodating with appropriate airs. One boatman sought the privacy and

welcome warmth of the engine cab to dry his shirt and trousers.

The reception of the trip by the daily press was excellent. Following a roto-gravure page of New Haven cyclists in its Sunday edition the Herald-Tribune on Monday ran a number of photographs of the boat trip. The Daily News (tabloid, 1½ million circulation) on Monday ran a solid page of pictures of the boating excursion. The New Haven will run another boat trip on Sunday, May 23.

"Green Diamond" a Year Old

The "Green Diamond" of the Illinois Central completed its first year of service between Chicago and St. Louis on May 17. In recognition of the anniversary, the railroad presented diamond-set key chains to two passengers—one on the morning run from St. Louis and the other on the evening run from Chicago. During the year the train has been operated at approximate capacity, and on 72 occasions second sections were required.

New Fast Train To Run Between England and Scotland

The London, Midland & Scottish of Great Britain will operate a new fast service between Glasgow and London, each way daily, making the journey of 401.4 miles in 6½ hours, or an average of 61.8 miles per hour, with a single stop at Carlisle. The new trains will each comprise 9 coaches hauled by one of 5 new streamlined locomotives, which are being constructed especially for this service.

Rail-River Trip for Philadelphia

The Pennsylvania will afford Philadelphians opportunity to enjoy a rail-river tour on May 28. The special train will run direct to the boat dock at Exchange Place Terminal, Jersey City, N. J., where a river-steamer will take the tourists around New York harbor and up the Hudson River to West Point, for an inspection of the U. S. Military Academy. The party will leave Broad Street station, Philadelphia, at 7:21 a.m. (standard time).

Would Permit Acquisition by Richmond Greyhound Lines

Joint Board No. 68, comprised of representatives of Virginia, Maryland and the District of Columbia has submitted to the Interstate Commerce Commission a report recommending that the Richmond Greyhound Lines be authorized to purchase for \$320,000 control of the Peninsula Transit Corporation which operates buses over about 666 route miles radiating out of Norfolk, Va.

Wheeler to Probe Railway Buying

Says he has many complaints of rebates to officers to place orders

Senator Wheeler announced at the May 14 session of his committee, which is now looking into the finances of the Chicago & Eastern Illinois, that if his committee did not find time to get around to it, he would ask either at this session of Congress or at the next session that the Interstate Commerce Commission or some other independent body investigate the question of railroad officers getting a rebate in the placing of equipment orders. This announcement came after Senator Wheeler had asked Carroll M. Shanks, chairman of the bondholders' protective committee of the Chicago & Eastern Illinois, whether or not either he or any of his associates had looked into this problem. The senator said that he had received numerous complaints stating that this practice existed and that he had learned from sources close to the railroad business that there was sufficient evidence to warrant such an investigation.

The hearings on May 13 and 14 were devoted to showing how the Van Sweringen interests who were in charge of the C. & E. I. obtained a loan from the R.F.C. and had stated in their balance sheet that the C. & E. I. had borrowed \$700,000 from the Midland Bank of Cleveland, when in reality the note had been purchased from the bank by the Chesapeake & Ohio and turned over to the Virginia Transportation Corporation. This misstatement was not discovered by the R.F.C. until it was too late for the Department of Justice to prosecute as the statute of limitations had run. During the hearing Mr. Shanks testified that the R.F.C. through its chairman, Jesse Jones, had virtually forced the bondholders to accept a plan of reorganization whereby the Van Sweringen interests were kept in control of the C. & E. I. Mr. Shanks went on to say that he believed that section 77 of the Bankruptcy Act was made to order for holding companies. Senator Wheeler remarked that it seemingly did not result in protection for the small stockholder.

At the conclusion of the hearing on May 14 Senator Wheeler announced that the hearings would not be resumed for several weeks. It is understood that the Committee will next look into the finances of the Pennsylvania.

Fans Appropriate Pennsy's Altoona

Road carries enthusiasts from
Chicago and New York
in record runs

The curiosity of railroad fans concerning the inner workings of the railroads was catered to last week-end when the Pennsylvania entertained 1,758 persons on its inspection trip to Altoona Works, Pa., announced in the *Railway Age* of April 24, page 734. Sponsored by several "fan" organizations and the Pennsylvania, the trip was effected by special fast trains from New York, Philadelphia, Chicago and Pittsburgh to Altoona, believed to be the "fastest and longest" runs ever operated for railroad enthusiasts. Middle-westerners (390 in all) paid \$8.75 each (the rate from Chicago) to participate in the excursion. Leaving Chicago at 8:50 p.m. Saturday, and returning on Monday morning at 6 o'clock, the time involved 26 hours of riding and a total roundtrip mileage of 1,176. On the outgoing leg of this trip the train, bearing 11 coaches, 2 diners and a light refreshment car, was operated on the schedule of the Pennsylvania Limited, making 582 miles in 12 hours.

From arrival at Altoona at 8:50 a.m. until departure at 4 p.m., the Chicagoans spent every moment on the various side trips on a pre-arranged schedule, and obtaining lunch was a catch-as-catch-can proposition; although it is literally true that the majority of the passengers appeared to be too busy to give the question of food more than passing thought. The excursionists were first shown the locomotive test rack in operation, and were then taken to the company's chemical, physical and electrical laboratory. At 11 a.m. they again boarded the train and were taken about three miles to the Juniata shops, where steam and electric locomotives are built and repaired. Here the

itinerary called for a visit through the boiler shop, machine shop No. 1 (first and second floors), smith shops No. 1 and 2, scale shop, machine shop No. 2, air brake shop and the erecting shop. At approximately 2:30 p.m. the fans again boarded the train and were taken to South Altoona, where the brass foundry, brass finishing shop, iron foundry and spring shop were inspected. Leaving the latter shop at 4 p.m., the train began its return trip by an "off-the-track" run of 21.8 miles over the Hollidaysburg and Petersburg branch and the New Portage branch, then returning to the main line for the remainder of the trip.

The two New York sections were scheduled to cover the 320 miles each way at better than the Broadway Limited's time of 350 minutes, while the Philadelphia train trailed close behind. All trains included in their consists dining cars and standard inspection cars regularly used by operating officers and available to the tour-party. Arrangements were made for the fans to enjoy the latter facilities in "batches," that all might have opportunity to "railroad in the grand style," and there was no moment when the "charabanc" seats were not crowded with guests.

Each of the New York sections was hauled on the electrified section between New York and Paoli, Pa., by one of the road's streamlined electric locomotives, Class GG-1, and each was privileged to ride for a time behind the new steam streamliner No. 3768. In order that photographers might have opportunity to snap action pictures of the new steam power in multiple-track districts, the dispatcher sent the section headed by the streamliner at a good pace past the other.

Because of limited time, upon arrival at Altoona, the Easterners were divided into groups, according to individual choice. Those interested in photographing rolling stock were supplied with blue tickets and spent the allotted time "filling in" the gaps of their picture collections. Others, supplied with red tickets, toured the erecting

(Continued on page 892)

No Opposition to C.&O.-Erie Merger

Short line asks inclusion in the
plan which includes also
the Nickel Plate

Hearings on the Chesapeake & Ohio's application for authority to acquire the Erie and Nickel Plate directly were held before the Interstate Commerce Commission on May 13 when evidence was introduced to show that the consolidation of these three lines would result in operating economies and would fit in with the commission's plan of creating this single rail network of 14,000 miles which has been designated as System No. 6. The principal witness at the hearing which lasted only one day and was attended only by railroad attorneys was R. S. Marshall, vice-president of the Chesapeake & Ohio, who described the benefits of the consolidated system which would embrace the coal fields of southwest Virginia and Kentucky and would serve all the principal cities in the eastern territory. Mr. Marshall also told the commission that the operation of lines of the Erie and Nickel Plate between Chicago and Buffalo can be coordinated in certain respects under a unified control and operation so that substantial savings in operating expenses might result. He added that the operation of terminal facilities at Buffalo and Chicago might be unified.

In answering the contention that the lines of the Nickel Plate and the Erie are competitive, Mr. Marshall said:

"The lines of the Nickel Plate and the Erie might be considered parallel between Chicago and Buffalo, but they serve generally different territories, the only intermediate common points being Cleveland, Lima and Ohio City, and do not compete except to a limited extent with respect to through traffic between Chicago and Buffalo and through the Nickel Plate's eastern connection between Chicago and New York. This competition is not important from the standpoint of public interest because of the competition of other railroad systems for traffic between these points."

The Chesapeake & Ohio is proposing to acquire from the Virginia Transportation Corporation, a wholly owned subsidiary, the Nickel Plate and Erie stock held by that company and to exercise an option from the Alleghany Corporation to take over from that corporation additional stock of the Nickel Plate and Erie. As a result of the transaction the Chesapeake & Ohio would have direct control of 57.02 per cent of the Nickel Plate common stock and 55.68 per cent of the Erie stock.

At the hearing there was no opposition to the plan of consolidation; but the receiver of the Chicago, Springfield & St. Louis, a 78-mile short line in Illinois, and a protective committee for that company's bonds, asked that in any order approving the application, that the commission require the C. & O. to take over the short line properties. The parties to the acquisition were directed to submit briefs by June 12 on the point of the short line acquisition.



A Lecture on an Iron Horse's "Points"

Eight Railroads Get Safety Awards

Pullman Company also wins
in railroad employees
national contest

Eight steam railroads and one zone of the Pullman Company were given plaques for winning first place honors in their respective groups in reducing employee casualties, at the annual banquet of the Railroad Employee's National Safety Contest at Chicago on May 17. The presentations were made by Dr. C. H. Watson, president of the National Safety Council.

The Union Pacific Railroad won first place in group A with a casualty rate of 3.13 per 1,000,000 man-hours on a total of 80,816,000 hours worked. The Chicago and North Western was second with a rate of 3.43 and the Chicago, Milwaukee, St. Paul and Pacific, first place winner in 1935, was third with a rate of 4.60.

Carl R. Gray, president of the Union Pacific Railroad, who received the award for his company, was praised by Dr. Watson as "1937's outstanding exponent of railroad safety" among the large railway systems. He pointed out that "for years the Union Pacific had carried the banner for group A railroads," and had been a frequent winner of first-place honors. "Carl Gray is going to relinquish direct operating responsibility of the U. P. when he retires this fall," said Dr. Watson; "William M. Jeffers will succeed him. For almost 18 years these two men have played the railroad safety game so effectively that 75 per cent of the possible winners in this contest have been of the Union Pacific family."

Mr. Gray, in accepting the award for his railroad, said that in his 54 years of active railway service he had witnessed a great evolution in safety. It has grown to be a vital part of the life of every Union Pacific employee, he continued. Mr. Gray also placed emphasis on the growing recognition of the social responsibility of the railways towards safety.

Other group winners were:

Group B (Between 20,000,000 and 50,000,000 man-hours)—Atlantic Coast Line, casualty rate of 3.09. In presenting this award, Dr. Watson pointed out that if other Class I Railroads had attained the same average fatality rate as credited by the I.C.C. to the A.C.L., there would have been 1,330 less railroad employee deaths in 1931 to 1936 inclusive.

Group C (Between 8,000,000 and 20,000,000 man-hours)—Mobile & Ohio, rate of 5.07. "This unit of the Southern System," Dr. Watson said, "won its first railroad safety award in 1930, having climbed from the bottom to the top in group D, and again in 1932 nosed out the Louisiana & Arkansas, eleven-year unbeaten champion of this group. Now, promoted to Group C, the M. & O. steps up front to receive its third award, and with it goes merited commendation of the entire operating personnel."

Group D (Between 3,000,000 and 8,000,000

man-hours)—Pennsylvania-Reading Seashore Lines; rate 3.66.

Group E (Between 1,000,000 and 3,000,000 man-hours)—New York, Susquehanna & Western Railroad Co.; rate, 2.54. In presenting this award, Dr. Watson said, "We are reminded of the copy-book motto, 'If at first you don't succeed, try, try again.' Ever since 1923, when we started our Green Book records, the N. Y., S. & W. has been persistently contending for first honors. Four times we find it in fifth place, four times in fourth place, once in third place, once in second place, and 1936 the winner. Such perseverance merits sincere congratulations. That this railroad has had a uniformly good safety record is indicated by the fact that its 1923 employee casualty rate was 12.72, as compared with the 1936 group average of 13.68; and, it has not had an employee fatality in seven consecutive years (1930-1936), with an accumulated record of 14,009,000 man-hours 'in the clear.'"

Group F (Less than 1,000,000 man-hours)—Lake Superior & Ishpeming; rate, 2.00.

The St. Louis zone, winner among the seven Pullman Co. zones in a competition conducted apart from the railroad contest, established an employee casualty rate of 0.98 for 7,107,232 man-hours worked. The San Francisco and the Philadelphia (So.) zones ranked second and third, with rates of 1.34 and 1.45 respectively. For the second successive year The Pullman Co. (including all seven zones and covering a two-year total of 88,544,658 man-hours) did not experience a single employee accident-fatality. Total casualties reported by the company for 1936 were 102, none fatal.

The other two groups of the contest covered switching and terminal railroads.

Group A (More than 1,500,000 man-hours)—The Chicago River & Indiana; rate, 3.97.

Group B (Less than 1,500,000 man-hours)—Conemaugh & Black Lick; rate, 1.07. This railroad has been in second place or better among the roads of its class in all but one out of eight years. It has completed nine consecutive years without an employee fatality.

A special citation of merit was made to President C. E. Carlson of the Duluth, Missabe & Northern for his "progressive leadership" in making the best employee-safety record of any Class I railroad in the country over a 10-year period. The Duluth, Missabe & Northern employee-casualty rate for 1936 was 0.96 per 1,000,000 man-hours, lower than any other. The road was denied top honors in group "D" by a contest rule that prohibits any competing unit from winning first place in two consecutive years.

E. H. Fritch Retires

Making effective the request that he presented at the convention of the American Railway Engineering Association last March, Secretary E. H. Fritch retired on May 1. Frank McNellis has been appointed assistant secretary in charge until a successor is selected. A sketch of Mr. Fritch's long career as secretary of this association appeared in the *Railway Age* of March 20, page 479.

Hearings on Rail Retirement Plan

House committee considers
measure resulting from
compromise agreement

Hearings before the House committee on interstate and foreign commerce on the Wagner-Crosser railroad retirement bill continued this week when concluding presentations on behalf of the Railway Labor Executives Association and the Association of American Railroads were followed by testimony of representatives of the Railroad Employees National Pension Association. From the committee members, who appear generally favorable to the bill, which is based on the recent labor-management compromise agreement, came frequent statements in praise of the co-operative spirit which brought about that accord.

There was some protest, however, from Representative Mapes of Michigan, who objected to that provision which would permit the Railroad Retirement Board to recruit its staff without regard to the provisions of the civil service laws; and from representatives of the Railroad Employees National Pension Association, who endorsed the original retirement bill but who "protested to High Heaven" against the "tragic barter" which brought forth the amending measure.

The provision with respect to exemption from the civil service laws was defended by both George M. Harrison, chairman of the Railway Labor Executives Association, and R. V. Fletcher, vice-president and general counsel of the Association of American Railroads, the former expressing the hope that unemployed railroad workers would be recruited and the latter finding justification in the fact that the work of the board requires specialized training and its expenses are to be paid entirely out of funds collected from the railroad industry. Mr. Harrison did, however, offer several amendments to other sections of the bill, which had been agreed upon by his own group and the railroads.

The chairman of the labor group was the first witness, commencing his testimony on May 13. He went through the bill, explaining each provision in detail and answering questions of committee members as he went along. The agreement between management and labor, Mr. Harrison stated in response to an inquiry, was reached without any promises or commitments by labor in other matters. At another point the witness expressed the view that improvements in technique had in recent years caused the loss of 200,000 jobs on the railroads. In other words, he estimated in this connection that if traffic returned to 1929 levels there would perhaps be places for no more than 1,400,000 employees.

Continuing, Mr. Harrison looked over railroad prospects for the future and found them bright. The carriers, he said, are giving better service—they are

"now out fighting, whereas at the onset of motor carrier competition railroad management did not regard it as a serious menace." Now, with the modernization and improvement programs, the railroads "will come into their own" because there is abroad in the industry "that new conception of meeting public needs."

Before proceeding to the offering of his amendments Mr. Harrison revealed that labor had originally proposed to management a pension plan based on a tax amounting to 12 per cent of payrolls—six per cent to be paid by the railroads and six per cent by the employees. But management could not be persuaded to go along on anything more than the present tax proposals, which, the witness said, actuaries have found adequate to carry the pension plan with a surplus of one billion dollars by 1975.

When Mr. Harrison had completed his explanation of the bill's provisions Representative Wolverton of New Jersey observed that he had never seen "a more pleasant instance of co-operation. It illustrates what can be done, and yourself and Judge Fletcher deserve commendation." Responding, Mr. Harrison said that despite the contentions of "grandstand managers" without responsibility, "I think we have done a good job." Whereupon Chairman Lea carried on to say that "members of Congress are much gratified by this co-operative spirit, and would be much more gratified if industries in the country generally would follow the example."

The amendments offered by Mr. Harrison are designed to tighten up various provisions of the bill. One, for example, would provide that a person applying for an annuity must give up any employment which he may have at the time of such application—whether or not such employment is with an employer subject to the act.

Appearing for the A. A. R., Judge Fletcher stated that since Mr. Harrison had spoken for both labor and management it was unnecessary for him to go through the bill. He therefore confined his remarks to a brief expression of concurrence in what Mr. Harrison had said. He revealed that management had hoped to work out a pension plan without legislation, but had encountered difficulties which made that impossible. Judge Fletcher characterized the role of the government under the plan as that of a stakeholder or policing authority. Asked if he expected the bill to be attacked in the courts, he expressed his thought that it would not, although he conceded that some stockholder might start an action. As to whether the plan would stand up in a court test, the witness replied that the anticipated decision on the Social Security Act will "throw a great deal of light" on that question. During the course of his remarks Judge Fletcher referred occasionally to the pension tax bill which is before the House committee on ways and means, but, unlike Mr. Harrison, he did not on such occasions talk "off the record."

Charles M. Hay, counsel for the Rail-

way Labor Executives Association, followed Judge Fletcher and made a brief statement in response to an inquiry from Representative Boren of Oklahoma as to the power of Congress to include in the plan Canadian employees of United States railroads. Mr. Hay saw no difficulty in that connection. Witnesses for the Railroad Employees National Pension Association included W. W. Royster and Frank E. McAllister, president and counsel respectively.

M. & St. L. Moves Offices

The Minneapolis & St. Louis has moved its general offices to the seventh floor of the Northwestern Bank Building on Marquette Avenue between Sixth and Seventh Streets, Minneapolis, Minn.

British Railways Move New York Office

The New York office of the Associated British & Irish Railways was removed to 9 Rockefeller Plaza, on May 17, according to C. M. Turner, who succeeds the late T. R. Dester as general traffic manager.

R. F. C. Loans to Railroads

The Reconstruction Finance Corporation has announced that as of April 30 its balance sheet showed the disbursements to railroads (including receivers) totaled \$522,126,239 and the repayments totaled \$177,042,417.

Club Meetings

The Traffic Club of Philadelphia announces its annual spring outing and shad dinner at the Turngemeinde Country Club, Eddington station (P. R. R.), on Saturday, May 22.

The annual convention of the Louisville & Nashville Veterans' Club will be held in Louisville, Ky., on June 26.

Would Permit Reduced Fares for Army and Navy Men

Representative Kelly of New York has introduced in the House of Representatives a bill which would amend the Interstate Commerce Act so as to permit carriers to give reduced rates to officers and enlisted men of the military and naval services while on leave of absence or furlough at their own expense.

Sweden to Run More Rail Cars

The Swedish State railways announce that twenty-five new "railway buses," seating 24 passengers and reaching a maximum speed of 90 kilometers per hour (56 m.p.h.), will be added to its fleet of more than 50 rail cars placed in operation several years ago. It is reported that this type of one-car "train" is especially popular with tourists in the northern section of Sweden.

Inundation Damages Awarded

The Chicago, Milwaukee, St. Paul and Pacific and the Western Union Telegraph Company have been awarded \$252,500 by a federal court at St. Paul, Minn., in a suit against the federal government for costs of protecting their properties from high water resulting from the construction

of a lock and dam on the Mississippi River at Trempealeau, Wis., as a part of a 9-ft. channel project on the upper river. The railway will receive \$237,809 and the telegraph company \$14,691.

"Super Chief" Sets Los Angeles-Chicago Speed Record

The "Super Chief" of the Atchison, Topeka & Santa Fe set a new Los Angeles-Chicago speed record on May 17 when it completed a run from Los Angeles to Chicago in 36 hr. 49 min. for the 2,228.4 miles. Including 17 stops, the eight-car lightweight streamlined train averaged 60.5 m.p.h. for the entire distance. It covered the 202 miles from La Junta, Col., to Dodge City, Kan., in 139 min., at an average speed of 87.2 m.p.h.

The best previous record between Los Angeles and Chicago was made by the Union Pacific on October 22-25, 1934, when its M-10001 covered 2,287 miles in 38 hr. 52 min., or at an average speed of 58.8 m.p.h. Prior to 1934, the record was held by the Santa Fe's Scott Special which, on July 9-11, 1905, covered the 2,246 mi. in 44 hr. 54 min., or at an average of 50 m.p.h.

Would Limit Judicial Review of Rate Orders

Senator Minton of Indiana has introduced in the Senate a bill to amend the judicial code so as to provide that it shall be prima facie evidence in any court of the validity of an order of a federal or state administrative agency, prescribing public utility or common carrier rates, if the rates prescribed by such order produce a return upon "the prudent investment" in the property of the carrier or utility sufficient to allow it "adequately to finance its reasonable obligations and perform its functions necessary in the public interest." The bill would prohibit a court's interfering with the operation of orders of regulatory bodies unless the rates prescribed thereby were first found to be confiscatory on the foregoing basis.

B. & A. Supervisors Elect Officers

The Supervisors' Club of the Boston & Albany, at Springfield, Mass., which comprises 128 members and has had 12 years of active life, elected H. C. Fletcher, of the office of shop superintendent at the West Springfield shops, president for the ensuing year. H. H. Searles, agent of the Railway Express Company at Springfield, was elected vice-president and D. E. Viger, of the office of the general storekeeper at West Springfield, was elected secretary-treasurer.

Annual Report of Argentine Railways

Higher gross revenues brought a net profit of 10,300,000 pesos (\$3,475,000) for the State Railways of Argentina during 1936. Revenues for the period amounted to 62,600,000 pesos while expenditures totalled only 52,300,000 pesos. This was the highest surplus ever recorded by the State-owned railway system and compares with one of 6,800,000 pesos in 1935; 5,100,000 pesos in 1934 and 400,000 pesos in

1933. Prior to 1933 the State Railways had always operated at a deficit.

The purchase of the Central Cordoba from its British owners for £9,500,000 provides the State System with direct railway access into Buenos Aires. Another important step contemplated by the government is the acquisition of the Trans-Andine Railway, at present owned by a British group. It is planned to expend more than five million pesos to repair the damaged section of the Trans-Andine line which connects Argentina and Chile across the Andes Mountains.

U. P. Bus Operation Challenged

The Interstate Commerce Commission has been advised that an information consisting of 101 counts has been filed by the United States Attorney for the district of Idaho alleging that the Union Pacific and the Union Pacific Stages, have been operating motor vehicles between Shoshone, Idaho, and Sun Valley Lodge without having obtained authority from the commission. The operation is said to have continued for 101 days, and each day is counted as a separate violation.

Money for I. C. C. and Railroad Retirement Board

Both houses of Congress last week adopted the conference report on H.J.R. 331 making, among others, emergency appropriations for the Interstate Commerce Commission's Bureau of Motor Carriers and the Railroad Retirement Board. The measure as originally passed by the house carried an appropriation of \$400,000 for the Motor Carrier Bureau. This was cut to \$300,000 by the Senate and raised to \$350,000 by the conference report. Similarly the \$300,000 appropriated by the House for the retirement board was cut to \$225,000 in the Senate and raised again to \$280,000 by the conferees.

B. & M. Plans "Jungle Train"

The Boston & Maine will run what is called a "jungle train" from North Station, Boston, Mass., to Hudson, N. H., where passengers will be entertained at Benson's Wild Animal Farm. When the train rolls into the station, its passengers will be met by an elephant, an antelope, a mountain goat, and a gander in pink apron and shoes, and, guided by Indian elephant boys in full costume, will view the animal population of the zoo. The "jungle train" will be operated on May 23 and June 6, 13, and 20, and will leave the North Station at 1:30 p.m. (daylight saving time), with return from Hudson station at 6:00 p.m.

Streamline Trains Between Bakersfield and Oakland

The Atchison Topeka & Santa Fe has asked the Railroad Commission of California for permission to improve its passenger service between Bakersfield, Cal., and Oakland with streamlined trains and by co-ordinating its trains and busses. The railroad proposes to establish co-ordinated and integral one-ticket rail and bus service and to install two all-steel, streamlined, 1800 h.p. Diesel-electric, five car trains

which it will operate on two six-hour schedules, each way, a day. Specifications for these trains have been completed by the Santa Fe and the Edward G. Budd Manufacturing Company.

President Reminded of I.C.C. Appointments

At his press conference on May 18 President Roosevelt was again questioned as to what disposition he had made of the two long-overdue appointments to the Interstate Commerce Commission. He said that he had not had time to do anything with them and then asked, "By the way, when do those appointments expire?" The newsmen assured him that they had expired on the last day of last year, but that the commissioners, Eastman and Tate, were still holding office. The President showed no concern about the appointments and gave no indication as to when he would act upon them.

June Exhibit Dates

A typographical error was made in the *Railway Age* of May 8, page 783. The date of the exhibit of the Railway Supply Manufacturers' Association at Atlantic City will be June 16-23, not June 17-23.

In addition to the list published in the *Railway Age* of May 1, the following firms will exhibit their products:

Collins & Aikman Corp., New York.
Downflow Syphon Co., Cleveland, Ohio.
The O. M. Edwards Co., Syracuse, N. Y.
Hazard Insulated Wire Works, New York.
The Hunter Sash Co., Inc., Flushing, N. Y.
Lubrication Products Co., Cleveland, Ohio.
P. R. Mallory & Co., Inc., Indianapolis, Ind.
The Okonite-Callender Cable Co., New York.
Railway Accessories Co., Cincinnati, Ohio.
The Ready-Power Co., Detroit, Mich.
Sunbeam Electric Mfg. Co., Evansville, Ind.
United States Gypsum Co., Chicago.
Alan Wood Steel Co., Ivy Rock, Pa.

A. C. L. Modifies Schedules

With the inauguration of summer schedules on May 16, the Atlantic Coast Line has again placed into service the "Tamiami" between Jacksonville, Fla., and New York and made several important schedule changes in intra-Florida runs. On its new schedule, the "Tamiami," a coach and Pullman train, will leave its Southern terminus at 7:30 p. m. and arrive in New York at 4:05 p. m., completing the run in 20 hours and 35 minutes. This represents the first New York-Florida run of the Coast Line at a less than 21-hour time. The new schedule will also make possible connections at Washington, D. C., with the Pennsylvania-New Haven "Senator," which arrives in Boston, Mass., at 9 p. m.

Pennsy Garden Club to Hold 1937 Flower Show

Pennsylvania Station, 30th street, Philadelphia, Pa., will be the scene of the second railroad flower show, on September 17 and 18, it is announced by R. C. Morse, vice-president of the eastern region of the Pennsylvania. The flower show will be conducted under the auspices of the Pennsylvania Horticultural Society and the Pennsylvania Railroad Garden Club.

The railroad section of this Philadelphia flower show will be thrown open to employees of all railroads, with a special division for exhibits from the 1,500 mem-

bers of the P. R. R. Garden Club. In advance of the fall show, the local clubs are planning separate exhibitions during the growing season. The New York branch, for example, has completed arrangements for an "iris, rose and perennial" show on June 1, while the Philadelphia organization will stage a "hardy chrysanthemum" show late in October. The P. R. R. Garden Club in Philadelphia is headed by W. A. Whittaker.

Fans to View Potomac Yards

Potomac Yards, Va., will be the goal of the combined forces of the New York and Philadelphia divisions of the Railroad Enthusiasts, Inc., augmented by various model societies and engine picture clubs, at the Baltimore & Ohio's special inspection party on Sunday, May 23. The party will leave Jersey City, N. J., at 8:42 a.m. on the new "Shenandoah," and arrive at Washington, D. C., at 1:20 p.m. with return at 5:30 p.m.

At Potomac Yards the group will have an opportunity to watch fast fruit trains arrive from the South, go through the classification yards, undergo re-icing for the trip northward. The rail fare for the excursion has been set at \$3.75 from New York.

Rail Officers Join Coal Research

George G. Ritchie, fuel service engineer of the Chesapeake & Ohio, and George Duglinson, Jr., assistant vice-president in charge of traffic of the Norfolk & Western, have been appointed to the Technical Committee of the Carnegie Coal Research laboratory. Founded in 1930, at the Carnegie Institute of Technology, the laboratory is engaged in fundamental research on coal, and has been sponsored by the U. S. Steel Corporation, the Koppers Company, the General Electric Company, the Standard Oil Company of New Jersey, the Westinghouse Electric & Manufacturing Company, the New York Edison Company, and other leading coal producing companies. Recently several railroads with large coal traffic have been added to the list of sponsors.

Gurley of the Burlington Heads Western Railway Club

F. G. Gurley, assistant vice-president, Chicago, Burlington & Quincy, was elected president of the Western Railway Club at its annual dinner in Chicago on May 17. At the same meeting, M. B. McPartland, general superintendent of motive power, Chicago, Rock Island & Pacific, was elected first vice-president; E. A. Clifford, general purchasing agent, Chicago & North Western, was elected second vice-president; and C. L. Emerson, division master mechanic, Chicago, Milwaukee, St. Paul & Pacific, was re-elected executive secretary. J. W. Fogg, vice-president, MacLean-Fogg Lock Nut Company, was re-elected treasurer, and vacancies on the board of direction were filled by D. C. Curtis, retiring president; W. L. Fox, general superintendent, Chicago & Western Indiana; H. H. Urbach, mechanical assistant to executive vice-president, Chicago, Burlington & Quincy, and V. R. Hawthorne, secretary, Division IV, Mechanical, Association of

American Railroads. At the same meeting, L. Robinson, assistant to general superintendent of motive power, Illinois Central, was re-appointed general chairman of arrangements. The meeting was the fifty-third annual dinner of the club and was addressed by Everett M. Dirksen, congressman from Illinois.

Emergency Board Reports On S. P. Controversy

The emergency board appointed by President Roosevelt to investigate the dispute between the four railroad brotherhoods and the Southern Pacific submitted its report to the President on May 14. The report stated that the labor organizations owed it to their members to settle their "inter-organization disputes" without threatening to interrupt interstate commerce. The report went on to say that the Southern Pacific would have "mitigated the conflict" if it had handled claims for the adjustment of grievances with greater certainty and centralization.

The board, which was composed of G. Stanleigh Arnold, chairman; Charles Kerr and Dexter M. Keezer, said that it found much truth in the statement of one of the labor organizations that "this is not a strike against the Southern Pacific Railroad, it is a fight between these organizations." The report stated that out of the 41 items which appeared on the strike ballot 30 were settled by agreement or compromise.

April Revenues 10.7 Per Cent Above 1936

Preliminary reports from 84 Class I railroads, representing 83.2 per cent of total operating revenues, made public on May 13 by the Association of American Railroads, show that those roads, in April, had estimated operating revenues of \$288,446,093 compared with \$260,681,994 in April, 1936, and \$371,025,239 in the same month of 1930. Operating revenues of those roads in April, were 10.7 per cent above those for April, 1936, but 22.3 per cent below April, 1930.

April freight revenues of the 84 reporting roads amounted to \$236,310,334, an increase of 11.1 per cent over the \$212,667,361 reported in April, 1936, but a decrease of 17.5 per cent as compared with the \$286,425,905 reported in April, 1930. Passenger revenues, in April totaled \$27,778,385, compared with \$25,656,447 in April, 1936, and \$49,923,687 in April, 1930—April this year being 8.3 per cent above the same month of 1936, but 44.4 per cent below 1930.

International Railway Congress to Convene in Paris

The 13th plenary session of the International Railway Congress Association, to convene at Paris, France, from May 31 to June 12, will be concerned largely with the discussion of scientific problems in the railroad field, each group seminar to be based on the reports of various official delegates. The only American to make such a report will be E. Wanamaker, electrical engineer, Chicago, Rock Island & Pacific, at Chicago, who will present findings for China, Japan, and the United

States on the question "Evolution of the rail motor car as regards its construction, and special investigation into the transmission and brake questions." The remaining reports on conditions and practices in this country will be presented almost entirely by British railway officers.

Other topics to be treated at the Congress include the construction of track for high speed operation; the uses of welding in track-work; maintenance of metal structures; experimental steam locomotives; electric current economy methods; organization for cutting costs of branch-line operation; suggested improvements for freight service; remote control and cab-signals; effects of the world depression and motor competition on rail earnings and suggested remedies; and personnel policies.

Country Elevators Oppose Train Limit

The Associated Southwest Country Elevators, Kansas City, Mo., adopted a resolution at its annual convention on May 12, vigorously opposing the passage of the train limit bill, S 69, and calling upon Senators Capper and McGill to exert every influence to defeat the measure and have it referred back to the Committee on Interstate and Foreign Commerce for a full and complete hearing. The resolution contends that a 10 per cent increase in freight rates will be necessary to meet the added costs to the railroads as a result of the bill, that this increase would direct more business to truck-peddlers and that the proposed reduction in train lengths together with reduced motive power, would bring about a serious delay in the return of cars and thus intensify car shortages.

Special Trains to Atlantic City Convention

A special train for members, exhibitors and friends attending the Mechanical and Purchases and Stores divisions meetings and the Railway Supply Manufacturers' Association exhibit at Atlantic City, on June 16 to 23, will be operated by the Pennsylvania from Chicago to Atlantic City on June 14. The train will leave Chicago at 3:10 p.m. (central standard time) on June 14, and arrive in Atlantic City at 9:25 a.m. (eastern standard time) on June 15. The round-trip fare from Chicago to Atlantic City is \$50.45, with a return limit at October 31. Stopovers may be made at any point enroute.

Railroad fans and camera enthusiasts from New York and Philadelphia will also have opportunity to view the exhibits, by invitation of the railway supply manufacturers, and are offered transportation to and from Atlantic City by the Pennsylvania in special one-day excursions on June 19 and 20. The return portion of the round-trip tickets will admit the passengers to the exhibits.

French Railways Reduce Rates for Exposition

Fifty per cent reduction in fares on principal railway lines in France will be granted to tourists visiting the International Exposition of Arts and Technique in Paris and who have secured a personal "legitimation" card which will soon be

placed on sale in the United States and in Canada, according to the General Director of the Bureau of Tourism of the 1937 Exposition. This card may be obtained at a cost of 20 francs (about \$1.00), will be valid for 60 days for travelers from a European country and for 90 days for those from other countries. The card will also allow 10 visits to the Exposition at half the usual entry rate, reductions on most French airplane and steamship lines, reductions on special transatlantic boat trains and in landing and re-embarkation taxes.

Strategic New Haven Span Burns

The New York-Boston shore line of the New York, New Haven & Hartford was severed on May 17 by a fire which partially destroyed the 250 ft. double-tracked bridge over the Lieutenant river, at Old Lyme, Conn. The cause of the blaze, which gutted the wooden trestle work, is unknown. Upon cessation of operation over the bridge, trains were at first rerouted via Hartford, Conn., and Willimantic. Later, on May 18, all trains between New York and Boston were operated via Hartford, Conn., Springfield, Mass., and the Boston & Albany. Local points on the shore line were served by shuttle trains and bus connections made between Saybrook, Conn., and New London. Officers of the road believe that these latter routing arrangements will be in effect for a week or 10 days, while reconstruction of the damaged portions of the bridge continues.

Delay Seen In Rock Island Reorganization Plan

Threats that the period of reorganization of the Chicago, Rock Island & Pacific might be a lengthy one were voiced by interested parties when the Interstate Commerce Commission resumed public hearings on May 18. The General Mortgage Bondholders Committee informed the commission that it would, before the expiration of the present hearing, give the commission a statement to demonstrate the "impossibility" of formulating any adequate plan of reorganization based on the record of the Rock Island company. Also, counsel for the Rock Island, Arkansas & Louisiana Bondholders Protective Committee asked the commission to require the Rock Island to submit comprehensive accounting data concerning the Rock Island's lease of that property and its operation of it. M. L. Bell, counsel for the Rock Island, objected to this demand and said that not only would the compliance with this request be very expensive, but that it would mean a delay of two or three years in the reorganization.

E. W. Leake, who made this demand for the accounting, also asked the commission to find that the R. I. A. & L. is insolvent, that its equity has no value and that, under the terms of the Rock Island reorganization plan, the R. I. A. & L. bondholders would receive unfair and inequitable treatment. E. L. Williams, appearing on behalf of the bondholders of the Choctaw, Oklahoma & Gulf and the Choctaw & Memphis, requested the commission to require the Rock Island to furnish information regarding the equipment

owned by these lines at the time that they were leased by the Rock Island and how much equipment is allocated to them under the present reorganization plan.

During the session on May 18 the commission heard testimony as to the practicability of severing from the Rock Island the Rock Island, Arkansas & Louisiana and the acquisition of that road by the Louisiana & Arkansas. The hearing was adjourned on May 19 until June 21.

Superintendents Convention Program

The American Association of Railroad Superintendents will hold its annual convention at the Palmer House, Chicago, on June 8-10. The program for this convention follows:

TUESDAY, JUNE 8

Morning session—10 A. M.

Opening address by J. T. Gillick, chief operating officer, C. M. St. P. & P., Chicago, Ill.
Address by President J. J. Brinkworth, assistant superintendent, N. Y. C., Buffalo, N. Y.
Report of Secretary-Treasurer F. O. Whiteman.
Report of Committee on Getting Cars Through Terminals; W. L. Fox, chairman, general superintendent, Belt Railway of Chicago.

Luncheon—12:30 P. M.

Address on Meeting Today's Transportation Problems by Carl R. Gray, president, Union Pacific System.

Afternoon session—2 P. M.

Report of Committee on Modernizing the Handling of L.C.L. Freight; P. M. Shoemaker, chairman, superintendent freight transportation, N. Y., N. H. & H., New Haven, Conn.
Report of Committee on Operation of Local Stations; E. G. O'Brien, chairman, assistant to general superintendent of transportation, C. P. R., Montreal, Que.

WEDNESDAY, JUNE 9

Morning session—9:30 A. M.

Report of Committee on Operating Problems of Fast Freight Train Service; C. E. Olp, chairman, superintendent, N. Y. C., Syracuse, N. Y.
Address by J. M. Symes, vice-president, Association of American Railroads, Washington, D. C.
Report of Committee on Operating Aspects of Local Passenger Train Service; W. E. Lamb, chairman, general superintendent, M. P., Little Rock, Ark.
Report of Nominating Committee.

Afternoon session—2 P. M.

Report of Committee on The Superintendent and Safety; H. A. Parish, chairman, Superintendent, C. & N. W., Boone, Ia.
Address on Handling of Explosives in Switching Service by E. J. League, inspector, Bureau of Explosives, Association of American Railroads.
Address by C. H. Dietrich, executive vice-chairman, Freight Claim Division, Association of American Railroads.

Round Table: For the informal consideration of transportation problems raised by members.

THURSDAY, JUNE 10

Morning session—9:30 A. M.

Report of Committee on Fuel Conservation; C. J. Connett, chairman, superintendent, C. B. & Q., Ottumwa, Ia.

Plans are being developed for the members and their families to visit one of the steel mills on Thursday afternoon, where opportunity will be afforded to observe the rolling of rails.

World's Busiest Main Line

In a recent issue, "The Railway Gazette" (London), seeking the world's busiest main-line stretch, compared the right of varied stretches to the title. The electrified route of the Pennsylvania between New York and Philadelphia was found to be the banner section for "track-occupation," but its less-than-100-mile length qualified the decision somewhat.

While the London, Midland & Scottish has a busy 158-mile section between Euston station (London) and Crewe, the record for distance, as well as traffic density, in the Gazette's judgment, goes to the

Paris, Lyons & Mediterranean for its 200-mile main line between Paris and Dijon, which carries the whole of the traffic to and from Lyons, Marseilles, and the Riviera, and that destined for Italy, via the Mont Cenis, route, and for Switzerland, via the Simplon tunnel. It is reported that on days of heavy passenger movements express or "rapide" trains, on runs of 400 miles or more, ran over the line at 6 to 7 minute intervals, although the route enjoys only double-track for much of the distance.

Rail-Highway Vehicles to Be Operated by C. N.

Three passenger and one freight rail-highway vehicles will be placed in experimental service on branch lines by the Canadian National to determine the adaptability of this type of equipment for use in Canada and its effectiveness in cutting down operating costs on light traffic lines. The passenger cars are of a streamline design with capacity for 26 passengers and luggage. They are equipped with two pairs of inflated driving wheels and one pair of inflated wheels in front for road work. The cars can be transferred from road to rail in less than a minute by means of two pairs of flanged guide wheels which can be let down to connect with the rails by means of a simple mechanism controlled from the driver's seat. The freight trucks, designed for speedy loading and unloading from the rear and sides will have a carrying capacity of 2½ tons on the highway and when used entirely in rail service, 5½ tons. Because the cars can be operated on the highways, they can be used to pick up and deliver passengers and freight in communities that are not located directly on the railway line.

Senate Passes Signal Bill

The Senate on May 17 passed the signal inspection bill (S. 29) after adopting several amendments proposed by the committee on interstate commerce, including one which eliminates highway grade crossing protective devices from the scope of the measure.

Senator Barkley of Kentucky, sponsor of the bill, explained it as one which authorizes the Interstate Commerce Commission to inspect signal devices and to require the installation of such devices. He estimated that it will cost approximately \$43,000 a year for the commission to carry out the contemplated inspections; and this amount he called "an insignificant sum compared to the safety of travel that will be brought about." In Senator Barkley's opinion the cost to the railroads "would be insignificant," depending on whether or not the commission should order any new signal devices installed.

Asked by Senator King of Utah whether the I. C. C. approved the measure, the sponsor replied that it had been submitted to the regulatory body, which had suggested amendments incorporated in the bill as reported by the committee. With those amendments, he added, "the commission does not object to the passage of the proposed legislation." While no hearings were held on the present bill, Senator Barkley said that hearings were held on

a similar bill in the last Congress, which also passed the Senate but was not acted upon by the house.

Young Canadian Railroaders to Hear Prominent Officers

A conference of younger railway men, drawn from all branches of the Canadian Pacific and Canadian National Railways will be held in Montreal, Que., on June 11, 12 and 13, in co-operation with the transportation department, National Council of Y.M.C.A.'s of Canada, as announced in the *Railway Age* of May 1, page 767. Approximately 150 young employees, selected from the various departments of the two railways, will attend the conference, together with various railway officers, counselors, Y.M.C.A. secretaries and executives.

Discussion groups, each made up of men in a single class of occupation,—operating, telegraph, mechanical, etc., will pursue the theme of the conference, "Character in Citizenship and Leadership." In addition, distinguished speakers will inform the delegates of present and future opportunities in railroad work and give them opportunity to talk over themes of mutual interest.

Questionnaire forms have been distributed in order to give the employees an opportunity to enumerate any problems or subjects they would like discussed in the counseling groups, in addition to those set forth by the Committee after consideration of the numerous questions propounded at previous conferences.

The committee in charge of the conference has as its chairman A. J. Hills, chief of personnel of the Canadian National.

Spotting Service Orders Upheld

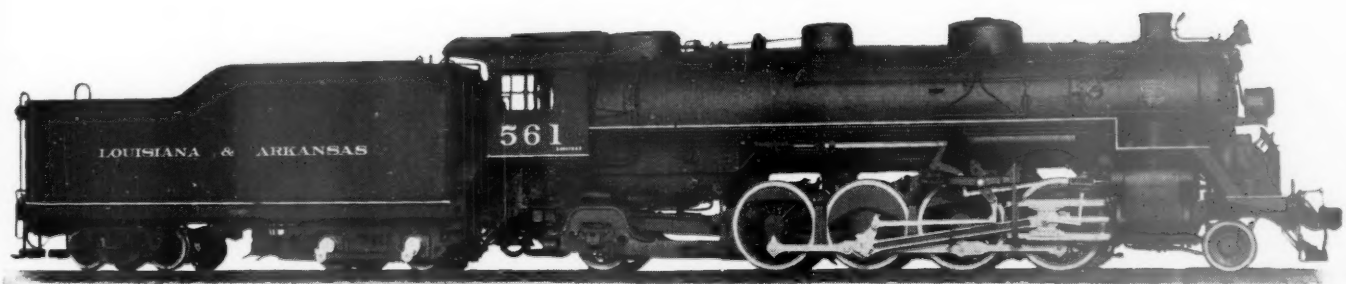
Orders of the Interstate Commerce Commission directing railroads to cease and desist from spotting cars on industrial plant tracks as part of the service rendered under interstate line-haul rates, and from granting allowances out of such rates to industries doing their own switching, were upheld by the United States Supreme Court in a decision handed down on May 17. The orders of the commission were entered in its terminal services investigation—Part II of the general Ex Parte 104 probe of practices affecting operating revenues or expenses.

The case reached the Supreme Court on appeal from decrees of the U. S. district court for the western district of Pennsylvania enjoining and setting aside the commission's orders with respect to services performed at plants of the American Sheet & Tin Plate Company, the Allegheny Steel Company, the Pittsburgh Plate Glass Company, the Weirton Steel Company and the West Leechburg Steel Company.

The opinion, by Justice Roberts, sketched briefly the history of the terminal services investigation and examined the contentions of the industries involved. The latter it rejected with findings that the commission "is clearly empowered to determine what is embraced within the service of transportation and what lies outside that service"; that the making of allowances has not been governed by any principle establishing a "custom or practice which has the force of a rule of law that

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the line-haul rate includes plant spotting service"; that the commission properly held that each case must be decided upon the circumstances disclosed; and that "we are unable to say that the findings in respect of the individual plants lacked support in the evidence." Justice Butler dissented.

Regulation of Freight Forwarders Proposed

Freight forwarding companies would be brought under the regulatory provisions of the Motor Carrier Act by a bill (H. R. 7047) introduced in the House of Representatives on May 14 by Representative Gearhart of California. The bill would place under Interstate Commerce Commission control any "indirect carrier operation" which is defined as "any interstate or foreign operation in which a person (including forwarding companies but not thereby excluding other persons) undertakes to transport property for the general public for compensation pursuant to arrangement whereby the instrumentalities or services of another carrier are utilized to provide such transportation in whole or in part."

All persons engaged in such operations, which are not subject to Part I of the Interstate Commerce Act and in connection with which motor vehicles are utilized in any manner, would be deemed to be motor carriers within the meaning of Part II of the act; and "all of their interstate or foreign operations in connection with rail, express or water carriers, as well as those in which motor vehicles are utilized," would be subject "to all the provisions" of the act relating to or affecting common carriers by motor vehicle. The I. C. C. would be empowered to prescribe regulations under which these "indirect carriers" might employ the instrumentalities of other carriers.

I.C.C. Hears Arguments in Power Reverse Gear Case

On May 18 the Interstate Commerce Commission heard arguments as to the advisability of issuing a formal order requiring the railroads to install power reverse gears in their locomotives. Joseph H. Wright, counsel for the Illinois Central, and W. Carter Fort, of the Association of American Railroads, strongly urged the commission to either dismiss the case or simply reserve decision on it and let the railroads and the brotherhoods work out the agreement which has been reached with 131 Class I railroads. Mr. Fort said that the agreement included 97 per cent of all the locomotives owned by the railroads of the United States. He strenuously objected to the examiner's report in the power reverse gear case and said that the reading of the case will not disclose whether the hand gear or the power gear is the most dangerous. The commission showed considerable interest in hearing Mr. Fort describe the working of the two types of gears and asked him several pointed questions. It was brought out that there is some danger in the operation of the power gear due to the fact that the gear "settles" and may allow the Johnson bar to move either forward or backwards,

thus moving the train or injuring the engineer who might be in the path of the Johnson bar. Commissioner Eastman asked Mr. Fort whether or not this was an inherent defect in the mechanism or whether it could be remedied. Mr. Fort said that he was not prepared to answer the question.

Coming to the question of the agreement which has been signed by both the Brotherhood of Locomotive Engineers and the railroads, Commissioner McManamy asked Mr. Fort what recourse the employees had if the railroads chose to break the agreement. Mr. Fort replied that he thought that the lines would not dare to do such a thing, but that if they did, he did not feel that the unions would have any legal recourse.

H. M. McLaughlin, attorney for the Brotherhood of Locomotive Engineers, described to the commission the dangers that are inherent in the hand gear and showed how some railroads had corrected certain evils once they had been called to their attention. Questioned by Commissioner

Mahaffie as to whether his organization was willing to have the commission dismiss the case, Mr. McLaughlin said that he did not know what their attitude would be on that question, but that he felt that the agreement was satisfactory and that the brotherhoods would live up to their part of it and that they expected the railroads to do the same. George M. Morris appeared briefly for the Brotherhood.

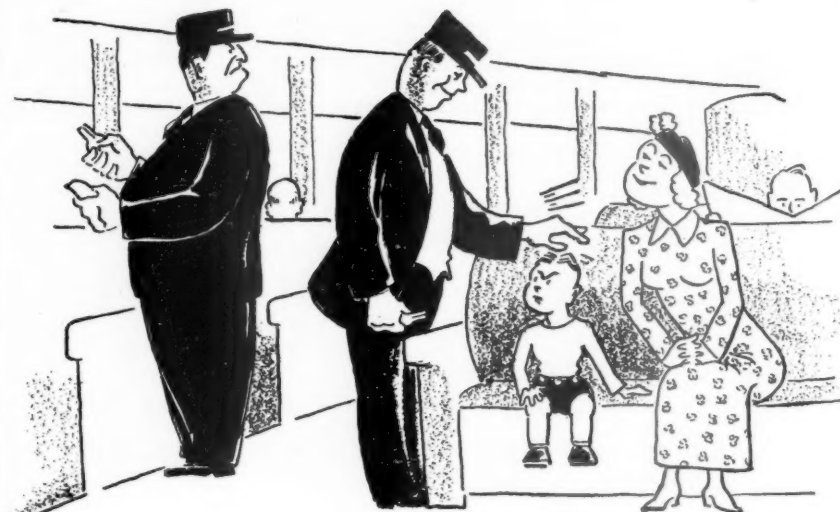
Ocean-Rail Rates from Eastern Seaboard to Southwest

Ocean-rail rates from points in eastern seaboard territory to points in southwestern territories over routes through north Atlantic ports and thence through south Atlantic and Gulf of Mexico ports have been further revised by the Interstate Commerce Commission in its twenty-fifth supplemental report in the consolidated southwestern cases. The new revision further modifies Finding No. 11 of the original report by eliminating the findings of undue prejudice and preference insofar

* * * *

Ticket-Taker or Salesman . .

WHICH ARE YOU?



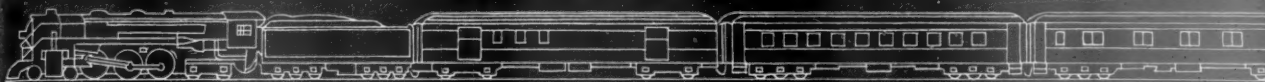
THE ART of selling transportation is no exception to the rule of good salesmanship in any other business.

★★ It is a successful policy from the standpoint of the railroad industry to make a habit of friendliness in your dealings with the public. A person on the road and away from home appreciates thoughtful attention, and the additional consideration given to his traveling needs does much to encourage a genuine impression of good-will. ★★ This willingness for friendly service is an estimable possession of long standing in which the employees of Chesapeake and Ohio Lines and Nickel Plate Road share prideful ownership. They know it's good business practice to "sell" their services at every opportunity.

CHESAPEAKE AND OHIO ★ NICKEL PLATE ROAD

The Psychological Approach

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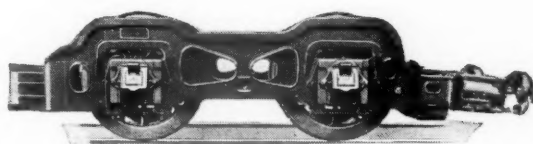


Traveling fast...fast asleep

[THANKS TO THE BOOSTER]



To bed at his usual time. Up at his usual time. Thoroughly rested. But he alights 1,000 miles away—where business is. Not a useful moment lost . . . Here's a man who appreciates modern train travel. He knows its greater safety. Now assured of a smooth, swift ride that lets him sleep, and rest as comfortably as at home, he's a booster for the railroad . . . Smooth, effortless starting is essential to travel comfort. The added power that the Booster brings assures this after every stop.



FRANKLIN RAILWAY SUPPLY CO., INC.

NEW YORK
CHICAGO
MONTREAL

as they are applicable to south Atlantic port routes, and by eliminating all maximum rates via those ports to or from Texas points other than those north of the Rock Island, Texola, Okla., to Glen Rio, Texas, via Amarillo. Key rates are revised so that a number of those to and from Arkansas and Louisiana points via south Atlantic ports are somewhat increased, while most of those via New Orleans, La., to and from points in Arkansas, Oklahoma and north Texas are somewhat reduced.

Also, equalization of rates over routes through different ports is approved, provided they are held within reasonable limits and avoid undue circuitry; the finding with respect to marine insurance is eliminated; and the carriers are relieved from the necessity of publishing rates via south Atlantic port routes through Mississippi river gateways from or to points in seaboard territory, from or to which there are no through rates to or from such gateways.

Collisions Between Motor Vehicles and Trains in 1936

The Interstate Commerce Commission's Bureau of Statistics has issued an analysis of 1936 accidents involving collisions between trains and motor vehicles at rail-highway grade crossings. The data are presented in a series of tables compiled from the monthly reports of accidents furnished to the commission by the railways.

There was an increase of 344 in the total number of highway grade-crossing accidents in 1936 over 1935, or 8.75 per cent. Motor vehicles were involved in 88.66 per cent of the total in 1936 compared with 89.35 per cent in 1935. For motor trucks and motor buses the percentage of increase was larger than for passenger automobiles. The only decreases were in the cases involving trolley cars and animal-drawn vehicles. The increase in fatalities was 106 or 6.31 per cent and in injuries 272 or 5.84 per cent in accidents of all kinds at grade crossings.

Accidents in which motor vehicles were struck by trains increased from 2,142 in 1935 to 2,360 in 1936, or 10.18 per cent; those in which the motor vehicles ran into side of train increased from 1,372 in 1935 to 1,432 in 1936, or 4.37 per cent. The relative importance of these two types of collision with respect to the total shifted slightly toward the accidents in which the motor vehicle was struck by the train. These constituted 62.24 per cent of the total in 1936 and 60.96 in 1935.

Crossing accidents are almost equally divided between day and night. The number of day accidents in 1936 was 1,878, an increase of 5.68 per cent over 1935; night accidents numbered 1,914 in 1936, an increase of 10.19 per cent.

Of the total number of motor vehicles involved in crossing accidents, 78.08 per cent were passenger automobiles and 21.33 per cent were motor trucks. The percentage for trucks represents a small increase over the 20.55 per cent shown for 1935. Freight trains were involved in 45.70 per cent of these motor vehicle accidents and passenger trains in 40.03 per cent, the remainder having been mostly switching ac-

cidents. Freight trains were involved in 14.16 per cent more accidents at public crossings than passenger trains. This relation in accidents follows roughly the relation between freight and passenger train-miles. In 1936 freight train-miles exceeded passenger train-miles by 20.22 per cent.

Sixty-five per cent of the accidents occurred at unprotected crossings. There was practically no change from 1935 in the distribution of accidents according to type of protection. No information is available as to the number of vehicles passing over protected and unprotected crossings respectively. As many as 248 accidents occurred at crossings at night notwithstanding the fact that they were illuminated by lights especially installed for the purpose of track illumination. Flood lights did not prevent 29 motor-vehicle drivers from running into the side of trains. In 62.74 per cent of the accidents, it was reported that there was no obstruction to the view of the driver of the motor vehicle. This percentage becomes 72.89 if the "not reported" are disregarded.

Of 1,432 classified as "ran into side of train," 42.39 per cent were cases in which motor vehicle ran into the side of the locomotive or the lead car being shoved. This fact, the Bureau says, indicates that in many cases the distinction between struck by train and ran into side of train is not significant.

Fans Appropriate Pennsy's Altoona

(Continued from page 885)

shops. Still others, primarily interested in the locomotive testing plant, passed the time in watching "the locomotive that gets nowhere." Buses were operated on a circular route through the works for the conveyance of passengers who wished to cover more than one feature of the plant.

The Pennsylvania spotted equipment, both new and old, on yard tracks, that camera fans might obtain good views. The exhibits included modern freight and passenger cars, all built at Altoona, an old Baltimore & Eastern (now part of the Pennsylvania) 4-4-0 type passenger locomotive, an old 4-4-2 with 80 inch drivers, an extinct variety of the "saddle-tank" engine, and a modern K-4 "Pacific" passenger locomotive, of the type that hauled the tourists to Altoona.

Railroading atmosphere was imparted even to the special menus provided in the dining cars. For luncheon, such delicacies were noted as "mulligan" of spring lamb, "cabin car" style and mixed "scrap" salad, and for dinner there were offered potatoes browned "fire-box," "tender" green-peas, head of lettuce with "caution" dressing, and "clear" milk "hi-ball."

All passengers were supplied with pictorial booklets describing the route over which they passed and containing a welcome by M. W. Clement, president of the road. In addition, there were placed into their hands booklets describing in detail the four main units of the Altoona Works and revised maps of the plant, drawn to a scale of one inch to 800 ft.

Construction

ATCHISON, TOPEKA & SANTA FE.—This company now has under construction at San Francisco, Cal., a three-story concrete freight house which is being erected on the northwest corner of Spear and Bryant streets. The general contract for the construction of the new freight house is held by Lindgren & Swinerton, San Francisco. It is expected that the structure will be completed by June 30.

BALTIMORE & OHIO.—A contract has been awarded to the Roberts & Schaefer Company, Chicago, for the construction of a 100-ton structural steel two-track coaling station at Ravenswood, W. Va.

DELAWARE & HUDSON.—An estimate of cost of \$688,245 for the elimination of the East street, South Grand street, Grove street and East Main street crossings of this road in Cobleskill, N. Y., has been approved by the New York Public Service Commission. Plans and specifications for the work also have been approved by the commission. The railroad has been authorized by the commission to do certain work in connection with the elimination of these crossings by direct employment of labor and purchase of materials, without contract for an amount limited to \$176,852.

LOUISIANA & ARKANSAS.—Bids will be received on May 26 by the Louisiana Highway Commission for work in connection with the construction of a combination highway and railway bridge across the Mississippi river at Baton Rouge, La. The L. & A. has contracted for the use of the new bridge and in return will pay 4 per cent interest annually on \$3,000,000 of the original cost of the structure, which will be approximately \$7,000,000. The new bridge will be about 12,000 ft. long.

NEW YORK CENTRAL.—The New York Public Service Commission has approved a low bid of \$167,916, submitted by Bates & Rogers Construction Company, Staten Island, N. Y., for the elimination of the North Main street crossing of this road in the town of Elbridge, N. Y.

NEW YORK CENTRAL.—A revised estimate of cost totaling \$212,100, exclusive of land and property damages, for the elimination of the Congress street or Clutes crossing of this road in Schenectady, N. Y., has been approved by the New York Public Service Commission. See *Railway Age*, April 17, page 694.

NEW YORK, CHICAGO & ST. LOUIS.—A contract has been awarded to the Ogle Construction Company, Chicago, for the construction of a 500-ton, four-track reinforced concrete coaling station at Frankfort, Ind.

ST. LOUIS-SAN FRANCISCO.—The Ogle Construction Company, Chicago, has been awarded a contract for the construction of a 100-ton two-track reinforced concrete coaling station at Carl Junction, Mo.

WABASH.—This company contemplates the early construction of a 400-ton 4-track coaling station at Moberly, Mo., at a cost of about \$55,000.

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NO. 16 OF A SERIES OF FAMOUS ARCHES OF THE WORLD



DEWEY ARCH

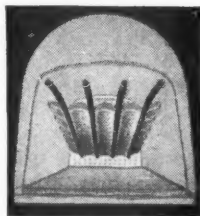
THE Dewey Arch was built in 1899 at Madison Square, New York City, to commemorate Admiral Dewey's victory over the Spanish fleet at Manila during the Spanish-American War. Being intended as a temporary structure only, it was removed one year later. » » » The Security Sectional Arch is also a monument to an important victory—an

engineering victory over losses incurred from fine coal and gases escaping unburned out of the stack. Today with a correctly designed and fully maintained Security Arch, locomotives attain their full capacity with a *minimum* of fuel consumption.

* * *

THERE'S MORE TO SECURITY ARCHES THAN JUST BRICK

**HARBISON-WALKER
REFRACTORIES CO.**
Refractory Specialists



**AMERICAN ARCH CO.
INCORPORATED**
*Locomotive Combustion
Specialists* » » »

Supply Trade

The Vermilion Malleable Iron Company, Chicago, has changed its name to the Vermilion Equipment Company. The business of the company will be confined to the manufacture and sale of railway equipment.

Dr. Earl G. Sturdevant, development manager of the electrical wire and cable department of the United States Rubber Products, Inc., New York, has been appointed consulting engineer of the same department.

The Hart & Cooley Manufacturing Company, Chicago, has added a second addition to its factory at Holland, Mich. J. H. Van Alsborg, engineer of application, has been promoted to manager of the contract department, which handles all items manufactured for railroad use.

The Graybar Electric Company, New York City, has opened three new branches as follows: At Peoria, Ill., with V. A. Elmsblad as manager and W. R. Harting as service supervisor; at Butte, Mont., with E. J. Riley as manager and C. M. Lawrence as service supervisor, and at Elmhurst, Long Island, N. Y.

J. P. Boore has been appointed assistant general sales manager of the Babcock & Wilcox Tube Company, Beaver Falls, Pa. Mr. Boore served for several years as vice-president of the Summerill Tubing Company, and for 20 years prior to that was associated with the Pittsburgh Steel Company in the production and sales departments.

Stanley E. Gillespie, who has been appointed director, Bureau of Railway Signaling Economics of the Union Switch & Signal Company and the General Railway Signal Company, with office at New York, was born on December 17, 1884, at Newtonville, Ohio. Mr. Gillespie, before graduation from Ohio State University in 1910, had two years' experience as a telegraph operator on the



Stanley E. Gillespie

Lake Shore & Michigan Southern, the New York, Chicago & St. Louis and the Pennsylvania Lines West, and two years' work in maintenance of electric interlocking on the Pennsylvania Lines West. After

college graduation he entered the service of the Union Switch & Signal Company, with a field crew, erecting signals, and a year later, in the summer of 1911, entered the engineering department at Swissvale, Pa., remaining there until the spring of 1915, when he was transferred to the sales department in Chicago, where he served for about six years. From 1921 to 1925, Mr. Gillespie represented the Union Switch & Signal Company in Japan, and returned to be assigned again temporarily to the Chicago office of the company. In 1926 he became resident manager at San Francisco, Cal. In the spring of 1930, he was assigned to a post in Europe in the combined interests of the Union Switch & Signal Company, the Westinghouse Air Brake Company and associated European companies, and resided in Brussels for nearly seven years. At the completion of his foreign assignment, he returned to the United States in February of the present year and assumed his duties with the Bureau of Railway Signaling Economics in New York, as of May 1.

Raymond C. Bullard has been elected to the board of directors of The Bullard Company, Bridgeport, Conn., and will



Raymond C. Bullard

continue to serve as advertising and publicity manager of this company. Mr. Bullard, after graduating from college, spent six years as an engineering student in the various departments of The Bullard Company's manufacturing division. This was followed by a considerable period in the sales, engineering and advertising departments. For the last five years he has been advertising and publicity manager.

OBITUARY

Robert M. Heinrichs, vice-president, director and general manager of the Bendix-Westinghouse Automotive Air Brake Company, Pittsburgh, Pa., died on May 18, in the Allegheny General Hospital, following a recent operation for appendicitis. Mr. Heinrichs was born on October 29, 1900, at Fort Wayne, Ind. He received his early educational training in Chicago and was graduated from the University of Illinois, as a mechanical engineer, with the class of 1922. Following his graduation, Mr. Heinrichs entered the employ of the Bendix Aviation Corporation, from which organization he went to Pittsburgh

in 1930, as general manager of the Bendix-Westinghouse Company, a mutual subsidiary of the Westinghouse Air Brake Company and the Bendix Aviation Company. In this capacity he served until recently, when his appointment as vice-president and director was announced.

TRADE PUBLICATION

WIRE BRACING.—The Gerrard Company of Chicago has recently published an 8-page brochure cataloguing the many uses of its wire-bracing for freight loading, called "uni-lastic stowage." Large-size illustrations picture loadings of various products such as steel, iron pipe, paper, crates, etc. The booklet closes with letters of commendation from customers.

Equipment and Supplies

Car Floats for the Pennsylvania

Improvements for car float construction have been developed by the Pennsylvania Railroad in conjunction with the Maryland Drydock Company, subsidiary of Koppers Company, in the construction of five floats for the Pennsylvania, to be used in the New York district. Two of the floats have already been completed and final delivery will be made on July 10. Each float is to be 250 ft. long with a moulded width of 34 ft. and a moulded depth of 9 ft. 1 in. and is to have 10 divisional bulkheads, the two end bulkheads being water tight. There will also be a covered loading platform on the center line of the float, except for 6 ft. at each end with the platform floor a definite height above deck to give efficient loading scale. The floats are to be equipped with two sets of tracks extending the full length of the float, one each side of the platform terminating at a bumper, and each float will have a capacity of 10 freight cars.

LOCOMOTIVES

THE LITCHFIELD & MADISON is inquiring for one 0-8-0 and one 2-8-2 type locomotives.

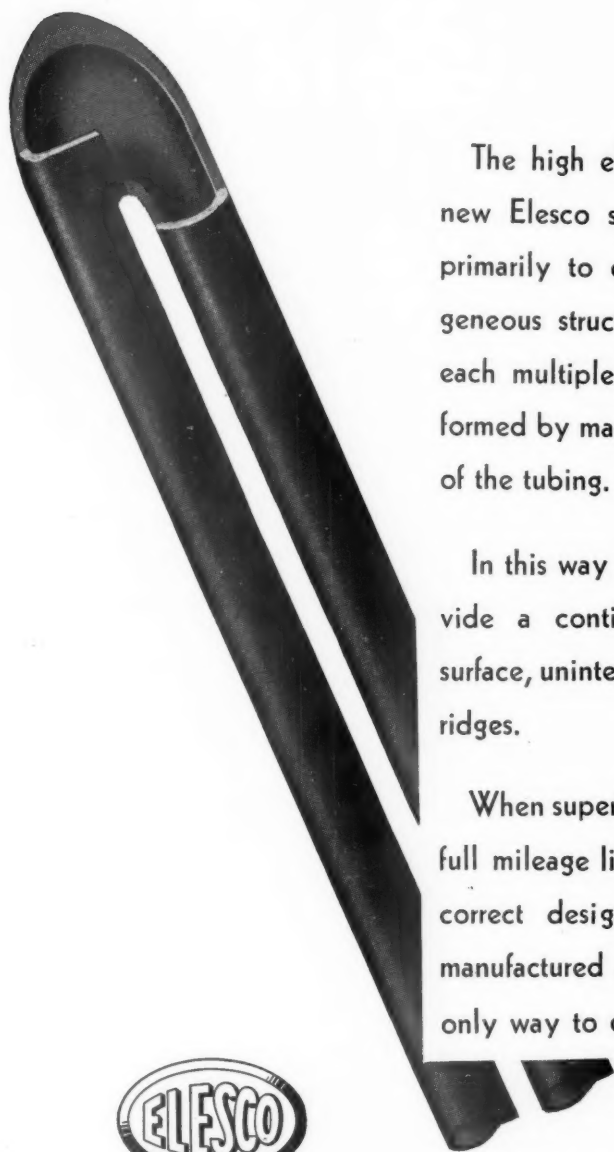
PASSENGER CARS

THE NORFOLK SOUTHERN is inquiring for one rail motor office car, to be 75 ft. 7 in. long.

THE FT. WORTH & DENVER CITY has ordered four passenger cars from the Edward G. Budd Manufacturing Company.

THE NEW YORK CENTRAL has placed in service on its Empire State Express two deluxe air-conditioned coaches, the first of 50 which it is rebuilding in its shops at Beech Grove, Indianapolis, Ind. The remaining 48 will be put in service, as rapidly as completed, on the company's principal trains between New York, Chi-

Maintain Basically Correct Superheater Design



The high efficiency and long life of new Elesco superheater units are due primarily to each unit being a homogeneous structure, the return bends of each multiple-loop unit being entirely formed by machine-die-forging the ends of the tubing.

In this way only is it possible to provide a continuously smooth internal surface, uninterrupted by dangerous joint ridges.

When superheater units have provided full mileage life, maintain their basically correct design by having them RE-manufactured at our plant . . . it is the only way to correctly extend their life.



A-1141

THE SUPERHEATER COMPANY

Representative of American Throttle Co., Inc.

60 East 42nd Street, New York

Peoples Gas Bldg., Chicago

Canada: The Superheater Co., Ltd., Montreal

Superheaters . Exhaust Steam Injectors . Feed Water Heaters . Pyrometers . American Throttles . Dryers

cago, Cleveland, Ohio, Detroit, Mich., and St. Louis, Mo. For the Boston & Albany, 17 coaches are being air conditioned at Allston, Mass., and 8 additional coaches for the Pittsburgh & Lake Erie at the Beech Grove shops.

FREIGHT CARS

THE ALIQUIPPA & SOUTHERN is inquiring for 20 rack cars of 100 tons' capacity.

THE AMERICAN RAILROAD OF PORTO RICO is inquiring for 40 tank cars, of 5,000 gals. capacity.

THE READING is inquiring for 650 underframes for the freight cars it will build in its own shops, which were reported in the *Railway Age* of May 1, page 772.

THE NATIONAL TUBE COMPANY has ordered 103 bodies for gondola cars of 70 tons' capacity, from the Ralston Steel Car Company.

IRON AND STEEL

THE COLUMBUS & GREENVILLE has ordered 1,257 tons of rails.

THE WESTERN MARYLAND has ordered 2,060 tons of rails.

CENTRAL OF NEW JERSEY.—A contract has been given to the American Bridge Company for 700 tons of steel for a bridge at Newark, N. J. The Standard Bitulithic Company, New York, has the contract.

LEHIGH VALLEY.—A contract has been given to the Harris Structural Steel Company, New York, for 290 tons of steel for grade crossing elimination work at Ithaca, N. Y.

NEW YORK CENTRAL.—A contract has been given to the American Bridge Company for 240 tons of steel, for grade crossing elimination work at Jordan, N. Y. Bates & Rogers Construction Company, Staten Island, N. Y., are the contractors.

SIGNALING

THE TOLEDO, PEORIA & WESTERN has ordered from the Union Switch & Signal Co. the necessary materials for automatic interlocking protection at its El Paso, Ill., crossing at grade, of the Illinois Central, involving searchlight signals, relays and their housings, rectifiers, transformers, etc. The T. P. & W. has also ordered from the Union Switch & Signal Co. similar materials for adding electrical features, involving track circuits, searchlight signals, etc., to its mechanical interlocking plant at Chenoa, Ill. The field work at both these locations will be carried out by the railroad's construction forces.

MOTOR VEHICLES

THE ATCHISON, TOPEKA & SANTA FE has ordered 22 motor coaches at a cost of \$300,000 from the American Car and Foundry Motors Corporation. The vehicles will be driven by Hall-Scott horizontal motors of 180 h.p. each.

Financial

ATCHISON, TOPEKA & SANTA FE.—*Extension of Operation.*—This road has applied to the Interstate Commerce Commission for authority to extend its operations over 5.9 miles of Toledo, Peoria & Western tracks between Streator Junction, Ill., and Pekin Junction. The trackage arrangement has been in effect since 1915, and the purpose of the present application is to insure its continuance.

CAZENOVIA SOUTHERN.—*Abandonment.*—The Interstate Commerce Commission, Division 4, has authorized this company to abandon, as to interstate and foreign commerce, its entire line extending from Cazenovia, Wis., to La Valle, 6 miles.

COLORADO & SOUTHERN LINES.—*Annual Report.*—The 1936 annual report of this company shows net deficit, after interest and other charges, of \$488,143 as compared with net deficit of \$846,549 in 1935. Selected items from the consolidated income statement follow:

	1936	1935	Increase or Decrease
RAILWAY OPERATING REVENUES	\$14,056,026	\$12,292,943	+\$1,763,083
Maintenance of way	1,464,165	1,455,554	+8,611
Maintenance of equipment	2,394,424	2,120,950	+273,474
Transportation	5,021,602	4,567,728	+453,874
TOTAL OPERATING EXPENSES	10,136,275	9,261,476	+874,799
Operating ratio	72.11	75.34	-3.23
NET REVENUE FROM OPERATIONS	3,919,751	3,031,467	+888,284
Railway tax accruals	1,246,159	696,438	+549,721
Railway operating income	2,673,591	2,335,029	+338,562
Hire of equipment—Net Dr.	471,821	416,276	+55,545
Joint facility rents—Net Dr.	312,724	300,918	+11,806
NET RAILWAY OPERATING INCOME	1,889,045	1,617,834	+271,211
Non-operating income	170,580	171,394	-814
GROSS INCOME	2,059,625	1,789,228	+270,397
Rent for leased roads	893	1,056	-163
Interest on funded debt	2,472,387	2,556,821	-84,434
TOTAL FIXED CHARGES	2,533,021	2,614,914	-81,893
NET INCOME (Deficit)	\$488,143	\$846,549	+\$358,406

DETROIT, TOLEDO & IRONTON.—*Equipment Trust Certificates.*—The Interstate Commerce Commission, Division 4, has authorized this company to assume liability for \$2,000,000 of 2¾ per cent equipment trust certificates, maturing in 10 equal annual installments on May 1, from 1938 to 1947. The issue has been sold at 98.2931 to a group composed of Salomon Brothers & Hutzler, Dick & Merle-Smith, and Stroud & Co., Inc., making the average annual cost to the company approximately 3.1 per cent.

GULF COAST LINES.—*Annual Report.*—The 1936 annual report of the New Orleans, Texas & Mexico and its subsidiary lines shows net deficit, after interest and

other charges, of \$1,650,504, as compared with net deficit of \$2,374,304 in 1935. Selected items from the consolidated income account follow.

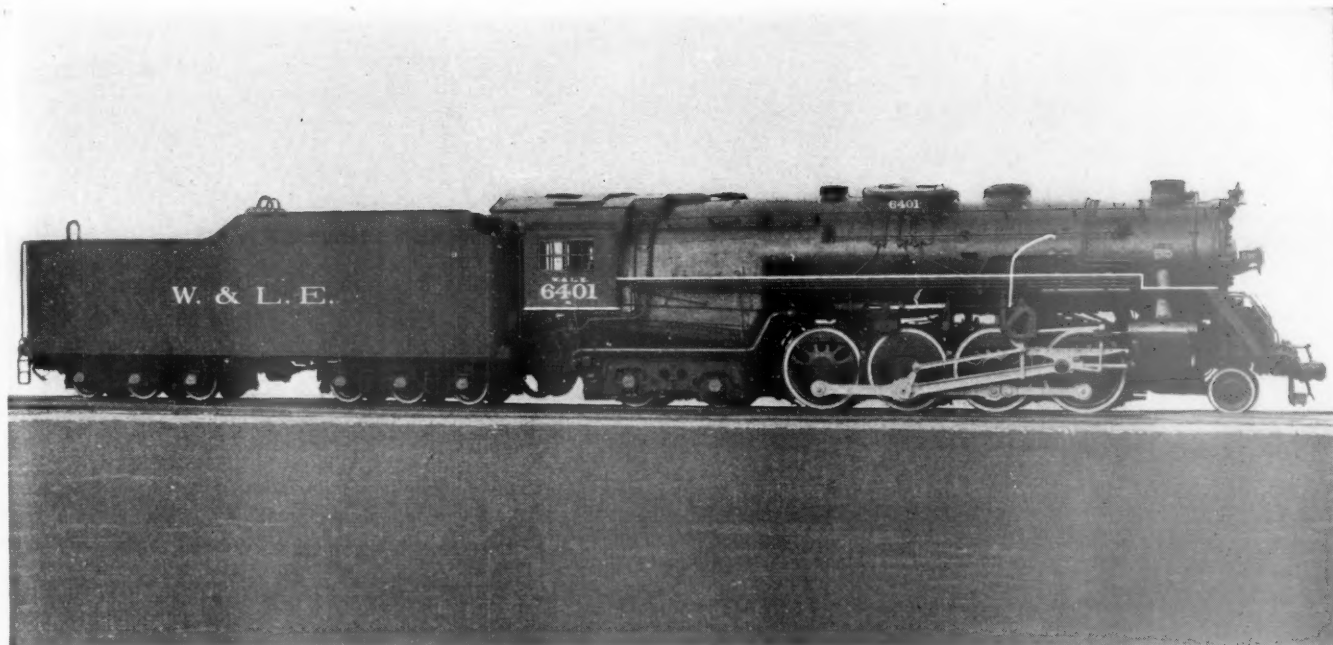
	1936	1935	Increase or Decrease
Average mileage operated	1,763.19	1,763.19	.....
RAILWAY OPERATING REVENUES	\$12,242,708	\$9,833,508	+\$2,409,199
Maintenance of way	1,915,889	1,596,963	+318,925
Maintenance of equipment	2,281,095	1,956,142	+324,953
Transportation—Rail	3,909,733	3,493,274	+416,459
TOTAL OPERATING EXPENSES	9,225,266	8,034,150	+1,191,115
NET REVENUE FROM OPERATIONS	3,017,441	1,799,358	+1,218,083
Railway tax accruals	768,445	556,027	+212,417
Railway operating income	2,248,996	1,243,330	+1,005,665
Net rents	1,257,107	978,531	+278,576
NET RAILWAY OPERATING INCOME	991,889	264,799	+727,089
Non-operating income	132,900	90,336	+42,563
GROSS INCOME	1,124,789	355,136	+769,653
Interest on funded debt	2,715,563	2,724,805	-9,242
TOTAL FIXED CHARGES	2,770,186	2,726,109	+44,077
NET INCOME (Deficit)	\$1,650,504	\$2,374,304	+\$723,799

INTERNATIONAL-GREAT NORTHERN.—*Annual Report.*—The 1936 annual report of this company shows net deficit, after interest and other charges, of \$2,658,913, as compared with net deficit of \$2,285,859 in 1935. Selected items from the income account follow.

	1936	1935	Increase or Decrease
Average mileage operated	1,154.51	1,154.51	.....
RAILWAY OPERATING REVENUES	\$12,141,148	\$11,534,327	+\$606,820
Maintenance of way	1,761,334	1,675,710	+85,623
Maintenance of equipment	2,415,624	2,356,005	+59,618
Transportation—Rail	4,978,558	4,605,997	+372,561
TOTAL OPERATING EXPENSES	10,190,577	9,599,629	+590,948
NET REVENUE FROM OPERATIONS	1,950,570	1,934,697	+15,872
Railway tax accruals	620,452	377,538	+242,913
Railway operating income	1,330,118	1,557,158	-227,040
Net rents	1,182,471	1,027,656	+154,814
NET RAILWAY OPERATING INCOME	147,647	529,502	-381,855
Non-operating income	43,556	41,331	+2,224
GROSS INCOME	191,203	570,833	-379,630
Interest on funded debt	2,827,984	2,839,009	-11,024
TOTAL FIXED CHARGES	2,838,055	2,849,336	-11,281
NET INCOME (Deficit)	\$2,658,913	\$2,285,859	-\$373,053

LONG ISLAND.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon that portion of its Manhattan Beach branch extending from Avenue J to the terminus at Oriental Boulevard,

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BUILT FOR THE WHEELING & LAKE ERIE

Strictly Modern Design

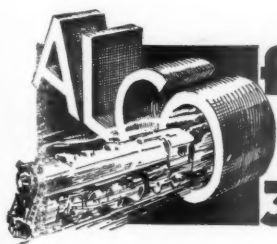
replacing 2-8-2 & 2-6-6-2 Compound Mallets
in manifest coal traffic

NEW POWER — NEW PROFITS

P. S. It is estimated that weekly car loadings this fall will pass 900,000

Weight on Drivers 259,500 pounds
Weight of Engine 407,500 pounds
Cylinders 25 x 34 inches

Diameter of Drivers 69 inches
Boiler Pressure 245 pounds
Maximum Tractive Power 64,130 pounds



AMERICAN LOCOMOTIVE COMPANY

30 CHURCH STREET · NEW YORK · N. Y.

Manhattan Beach, Brooklyn, N. Y., 3.32 miles.

MAINE CENTRAL.—Acquisition.—The Interstate Commerce Commission, Division 4, has authorized this company to acquire control of the Dexter & Newport by purchase of the capital stock.

MINNEAPOLIS & ST. LOUIS.—Receivers' Certificates.—The Interstate Commerce Commission, Division 4, has authorized the receivers to issue \$1,007,250 of receivers' certificates.

MISSOURI PACIFIC.—New Director.—W. Wyer has been elected a director of the Missouri Pacific to fill the vacancy caused by the death of the late O. P. Van Sweringen. Other directors have been re-elected.

MISSOURI PACIFIC.—Annual Report.—The 1936 annual report of this company shows net deficit, after interest and other charges, of \$8,095,236, as compared with net deficit of \$15,241,695 in 1935. Selected items from the income account follow:

	1936	1935	Increase or Decrease
Average mileage operated	7,219.93	7,232.68	-12.75
RAILWAY OPERATING REVENUES	\$90,421,931	\$74,550,935	+\$15,870,995
Maintenance of way	12,355,273	11,045,210	+1,310,063
Maintenance of equipment	17,550,585	15,976,728	+1,573,856
Transportation—Rail	31,784,185	28,166,995	+3,617,190
TOTAL OPERATING EXPENSES	68,232,871	60,750,184	+7,482,687
Operating ratio	75.46	81.49	-6.03
NET REVENUE FROM OPERATIONS	22,189,059	13,800,751	+8,388,307
Railway tax accruals	5,054,523	3,649,874	+1,404,648
Railway operating income	17,134,535	10,150,877	+6,983,658
Net rents	6,087,216	4,920,294	+1,166,922
NET RAILWAY OPERATING INCOME	11,047,319	5,230,582	+5,816,736
Non-operating income	2,066,959	825,874	+1,241,084
GROSS INCOME	13,114,278	6,056,457	-7,057,821
Rent for leased roads and equipment	160,379	122,773	+37,605
Interest on funded debt	17,630,160	17,862,843	-232,683
TOTAL FIXED CHARGES	21,106,512	21,200,829	-94,317
NET INCOME (Deficit)	\$8,095,236	\$15,241,695	+\$7,146,459

NEW YORK CENTRAL.—Kanawha & West Virginia Bonds.—This company has called for redemption on July 1, at 105, \$2,067,000 of Kanawha & West Virginia 5 per cent first mortgage bonds due 1955. Of these bonds \$590,000 are owned by the New York Central.

NEW YORK, CHICAGO & ST. LOUIS.—Annual Report.—The 1936 annual report of this company shows net income, after interest and other charges, of \$7,380,481 as compared with net income of \$1,115,929 in 1935. Selected items from the income account follow:

	1936	1935	Increase or Decrease
RAILWAY OPERATING REVENUES	\$41,712,951	\$34,235,450	+\$7,477,500

Maintenance of way	4,119,980	3,557,669	+562,311
Maintenance of equipment	5,930,636	4,999,432	+931,203
Transportation	13,598,521	11,797,651	+1,800,870

TOTAL OPERATING EXPENSES	26,637,173	23,107,185	+3,529,988
Operating ratio	63.86	67.49	-3.63

NET REVENUE FROM OPERATIONS	15,075,777	11,128,265	+3,947,512
Railway tax accruals	2,599,762	1,334,323	+1,265,439

Railway operating income	12,476,014	9,793,941	+2,682,073
Equipment rents—Net	2,852,916	2,574,691	-278,224
Joint facility rents—Net	485,375	459,702	-25,672

NET RAILWAY OPERATING INCOME	9,137,723	6,759,546	+2,378,176
TOTAL INCOME	14,956,239	8,650,491	+6,305,747

Rent for leased roads and equipment	3,531	3,531	.....
Interest on debt	7,499,191	7,462,330	+36,860
NET INCOME	\$7,380,481	\$1,115,929	+\$6,264,552

NORTHERN PACIFIC.—Equipment Trust Certificates.—The Interstate Commerce Commission, Division 4, has authorized this company to assume liability for \$6,490,000 of 2¾ per cent equipment trust certificates, maturing in 10 equal annual installments of \$649,000 on May 1, from 1938 to 1947. The issue has been sold at 100.6423 to a group composed of Salomon Brothers & Hutzler, Dick & Merle-Smith, and Stroud and Co., Inc., making the average annual cost to the company approximately 2.62 per cent.

PERE MARQUETTE.—Annual Report.—The 1936 annual report of this company shows net income, after interest and other charges, of \$2,758,003, as compared with net income of \$1,633,298 in 1935. Selected items from the income account follow:

	1936	1935	Increase or Decrease
RAILWAY OPERATING REVENUES	\$32,459,080	\$28,470,005	+\$3,989,074
Maintenance of way	3,570,892	3,108,949	+461,942
Maintenance of equipment	6,580,285	5,968,570	+611,714
Transportation	11,416,637	10,186,769	+1,229,868

TOTAL OPERATING EXPENSES	23,515,961	21,137,287	+2,378,673
Operating ratio	72.45	74.24	-1.79

NET REVENUE FROM OPERATIONS	8,943,118	7,332,718	+1,610,400
Railway tax accruals	2,014,947	1,208,305	+806,641

Railway operating income	6,928,171	6,124,412	+803,759
Equipment rents—Net	690,065	772,130	+82,065
Joint facility rents—Net	659,757	524,085	+135,671

NET RAILWAY OPERATING INCOME	5,578,349	4,828,196	+750,152
Other income	310,579	272,225	+38,354
TOTAL INCOME	6,165,834	5,194,915	+970,918

Rent for leased roads and equipment	69,634	72,893	-3,259
Interest on debt	3,270,406	3,394,272	-123,866
NET INCOME	\$2,758,003	\$1,633,298	+\$1,124,705

WESTERN PACIFIC.—Trustee and Counsel's Fees.—The Interstate Commerce Commission, Division 4, has authorized payment to Sidney M. Ehrman of \$12,000 a year as his salary as trustee of this company and \$18,000 for Warren Olney, Jr., as counsel for the trustees.

Average Prices of Stocks and Bonds

	May 18	Last week	Last year
Average price of 20 representative railway stocks..	55.89	56.73	45.22
Average price of 20 representative railway bonds..	80.24	80.85	78.79

Dividends Declared

Chesapeake & Ohio.—70c, quarterly; Preferred, \$1.00, quarterly, both payable July 1 to holders of record June 8.

Chesapeake Corporation.—75c, quarterly, payable July 1 to holders of record June 8.

Cincinnati, New Orleans & Texas Pacific.—Preferred, \$1.25, quarterly, payable June 1 to holders of record May 15.

New York & Harlem.—\$2.50, semi-annually; Preferred, \$2.50, semi-annually, both payable July 1 to holders of record June 15.

Northern Railroad of New Jersey.—4 Per Cent Preferred, \$1.00, quarterly, payable June 1 to holders of record May 22. Similar dividends have been declared for the other quarterly periods.

North Pennsylvania.—\$1.00, quarterly, payable May 25 to holders of record May 17.

Philadelphia, Baltimore & Washington.—\$1.50, payable June 30 to holders of record June 15.

Pittsburgh & Lake Erie.—\$2.00, payable June 15 to holders of record May 21.

Western New York & Pennsylvania.—\$1.50, semi-annually, payable July 1 to holders of record June 30.

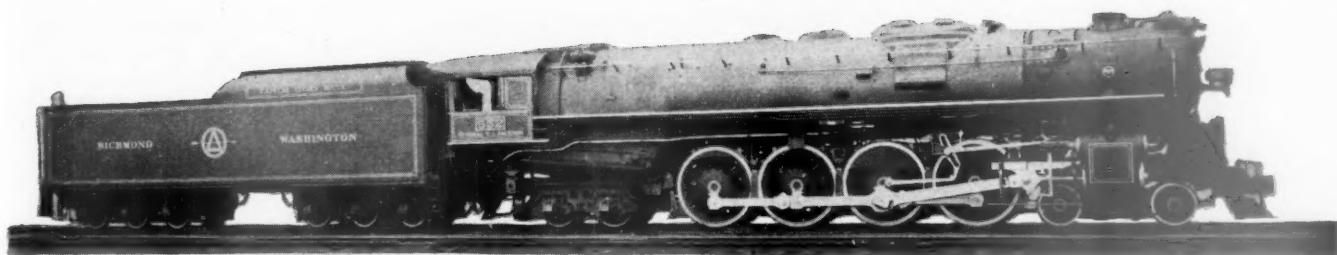
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Photo Courtesy U. S. Bureau of Public Roads

An Overpass at Calwa, Calif.—One of the Grade Crossing Projects Completed Under the Federal Works Program

Continued on next left-hand page



Duplex
Sectional
Packing

**On The
Five Generals**

General Robert E. Lee

General T. J. Jackson

General A. P. Hill

General J. E. B. Stuart

General J. E. Johnston

THE latest 4-8-4 type locomotives on the Richmond, Fredericksburg & Potomac R.R. named for five famous generals are equipped with HUNT-SPILLER Duplex Sectional Piston Packing.

Maximum steam tight operation with low cost of maintenance is thus assured on these modern locomotives enabling them to handle trains at less cost per ton mile.

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Cylinder Bushings
Cylinder Packing Rings
Pistons or Piston Bull Rings
Valve Bushings
Valve Packing Rings
Valve Bull Rings
Crosshead Shoes
Hub Liners
Shoes and Wedges
Floating Rod Bushings

**Parts Finished For
Application**

Dunbar Sectional Type Packing
Duplex Sectional Type Packing
for Cylinders and Valves
(Duplex Springs for Above
Sectional Packing)
Cylinder Snap Rings
Valve Rings All Shapes

HUNT-SPILLER MFG. CORPORATION

V.W. Ellet Pres. & Gen. Mgr./

E. J. Fuller Vice-President

Office & Works

383 Dorchester Ave.

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Canadian Representative: Joseph Robb & Co., Ltd., 5575 Cote St. Paul Rd., Montreal, P.Q.

Export Agent for Latin America:

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GUN IRON
Air Furnace

Railway Officers

EXECUTIVE

W. C. Hull, assistant vice-president of the Chesapeake & Ohio, will become vice-president in charge of traffic of the C. & O. and the Pere Marquette on July 1, to succeed **F. M. Whitaker**, vice-president in charge of traffic of the C. & O., the P. M. and the New York, Chicago & St. Louis, who has tendered his resignation. Mr. Hull will have his office as before at Cleveland, Ohio.

Charles E. A. McCarthy, secretary of the Southern, has been elected also vice-president, with headquarters, as before, at New York. Mr. McCarthy has been continuously in the employ of the Southern and its affiliated companies since February, 1898. He served as assistant secretary from January, 1901, until November, 1920, when he was elected secretary, which position he has held until his recent election as vice-president and secretary.

Edgar M. Whanger, special representative in the office of the vice-president of the Pere Marquette, who has been appointed assistant to the vice-president, as reported in the May 8 issue of the *Railway Age*, was born on August 29, 1899, at Fort Spring, W. Va. Mr. Whanger obtained his college education at Washington & Lee university, Lexington, Va., graduating in 1919. He first entered railway service on March 4, 1912, with the Chesapeake & Ohio and served with this company intermittently while attending school, as a messenger, timekeeper and accountant in the transportation, mechanical and stores department. In July, 1921, he became a machinist apprentice, in which capacity he served at Hinton, W. Va., and Clifton Forge, Va., until September, 1925, when he became a machinist at Huntington, W.



Edgar M. Whanger

Va. In the following month he was appointed mechanical inspector of locomotives and other equipment on the Hocking Valley (part of the C. & O.) at Columbus, Ohio. In September, 1929, Mr. Whanger was assigned to special work for

the C. & O., the H. V. and the P. M., with headquarters at Cleveland, Ohio, remaining in this capacity until February 1, 1930, when he was named special representative in the office of the vice-president, maintenance and operation, of the P. M. at Detroit. He was holding this position at the time of his recent appointment as assistant to the vice-president, maintenance and operation, with the same headquarters.

OPERATING

H. M. Smith has been appointed superintendent of the Elkins division of the Western Maryland, with headquarters at Cumberland, Md., succeeding **J. A. Abbott**, who has been transferred in the same capacity to the Hagerstown division at Hagerstown, Md., to succeed **W. D. Peddicord**, who has been assigned to other duties.

T. C. Montgomery, who has been promoted to assistant general manager of the Texas & New Orleans with headquarters at Houston, Tex., was born at Hempstead, Tex., on June 13, 1884, and entered rail-



T. C. Montgomery

way service on June 1, 1902, as a yard clerk on the Texas & New Orleans. After holding various clerical positions and serving as a switchman, brakeman and conductor on this railroad, he was promoted to trainmaster of the Houston division, now the San Antonio division, with headquarters at Yoakum, in 1927. In January, 1930, he was transferred to the Victoria division with headquarters at Victoria, and on July 16, 1931, he was promoted to supervisor of wages in the general office at Houston, which position he has held until his recent promotion.

M. J. Parr, trainmaster of the Columbus division of the Central of Georgia, with headquarters at Cedartown, Ga., has been appointed superintendent of the Savannah division. **J. L. Young**, general yardmaster at Columbus, has been appointed trainmaster at Cedartown. Mr. Parr was born on September 5, 1884, at Chesterland, Ohio, and was educated at Ohio State University. He entered railway service in June, 1904, on the Pennsylvania, lines West, and during the summers of 1904 and 1905, and from June, 1906, to March, 1907,

was assistant on the engineering corps of the same road. On March 18, 1907, he entered the service of the Central of Georgia as draftsman in the engineering department at Savannah. He was pro-



M. J. Parr

moted to assistant engineer of the Central of Georgia in January, 1909, and in May, 1914, was advanced to pilot engineer. In May, 1915, Mr. Parr became supervisor of bridges and buildings for the Columbus division and in January, 1917, was appointed roadmaster for the Macon division, which position he held until June, 1918, when he resigned to enter the army. After a brief term as assistant trainmaster of the Southwest and Columbus divisions, he was appointed trainmaster of the Southwest division on October 13, 1919, and on October 16, 1925, he was appointed superintendent of Macon Freight Terminals. On September 1, 1930, these terminals were consolidated with the Macon division and placed under the division superintendent and Mr. Parr was appointed trainmaster of the Southwest division at Albany, Ga. Following the consolidation of divisions in October, 1931, Mr. Parr was assigned to the Columbus division as trainmaster.

Edward F. Keene, who has been appointed superintendent of the Lehigh and Susquehanna division of the Central of



Edward F. Keene

New Jersey, as reported in the *Railway Age* of May 1, was born on May 9, 1893. He began his railroad career with the Baltimore & Ohio on March 9, 1912, as a

The Dixie fleet

OF *Fast Fine trains* TO ALL
FLORIDA



THE *Dixieland*

The only *Morning* train from Chicago DAILY

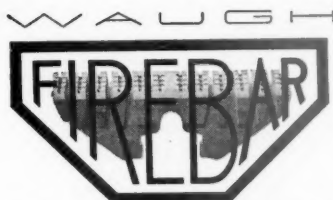
THE *Dixie Limited*

The popular *Afternoon* train from Chicago DAILY

THE *Dixie Flyer*

The famous *Night* train from Chicago DAILY

FIREBAR
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BETTER FIRES

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laborer in the motive power department at Locust Point, Md., serving with that road successively as car repairer, air brake man, car inspector, piece work inspector, gang foreman, brakeman and pipefitter. On April 19, 1918, Mr. Keene was furloughed for military duty and on January 28, 1919, re-entered the service of the Baltimore & Ohio as gang foreman, then serving consecutively as car foreman at Curtis Bay, Md., general car foreman at Riverside, W. Va., assistant trainmaster, terminal trainmaster at Brunswick, Md., and at Eastside, Pa. On September 1, 1936, Mr. Keene was appointed assistant superintendent of the Philadelphia division of the Reading, retaining this position until his recent appointment as superintendent of the Lehigh and Susquehanna division of the Central of New Jersey, with headquarters at Mauch Chunk, Pa.

SPECIAL

Albert R. Beatty, editor and manager of the Port Washington (N. Y.) Times-Post, will on June 1 join the public relations department of the Association of American Railroads in Washington, D. C.

OBITUARY

William H. Bradley, who retired as assistant to the vice-president in charge of personnel of the Chicago & North Western in 1933, died in Oak Park, Ill., on May 12.

Joseph Henry Baldwin, superintendent of the Savannah division of the Central of Georgia, died in Savannah, on April 19, after an illness of about two weeks. Mr. Baldwin was born in Columbus, Ga., on

October 1, 1877, and entered the service of the Central of Georgia on July 1, 1892, in the office of the superintendent at Columbus. He served successively with that road from September, 1898, to September, 1912, as chief clerk to the superintendent at Savannah, chief clerk of the Macon and Chattanooga divisions at Macon, Ga., trainmaster of the Chattanooga division at Cedartown; trainmaster and then transportation inspector at Savannah. Mr. Baldwin was appointed superintendent of the Columbus division on September 15, 1912, and was transferred to Macon as superintendent of the Southwestern division on October 1, 1916. On October 1, 1931, when the five divisions of the Central of Georgia were consolidated into three, he was sent to Savannah to head the Savannah division, the position he held at the time of his death.

The Baltimore and Ohio Railroad Co.

SUMMARY OF ANNUAL REPORT FOR YEAR 1936

The Annual Report of the President and Directors for the year 1936 is being mailed to Stockholders of record. Operating results and other matters of interest are summarized as follows:

CONDENSED INCOME ACCOUNT

	Year 1936	Increase Over 1935
Total Railway Operating Revenues.....	\$168,992,680.63	\$27,149,416.98
Total Railway Operating Expenses.....	123,600,333.14	18,046,342.48
Net Operating Revenue.....	\$45,392,347.49	\$9,103,074.50
Railway Tax Accruals.....	10,222,321.63	2,989,585.57
Equipment and Joint Facility Rents.....	4,984,720.57	113,167.06
Net Railway Operating Income.....	\$30,185,305.29	\$6,000,321.87
Other Income: Dividends, Interest, etc....	7,246,694.19	1,673,866.54
Income Available for Fixed Charges... Fixed Charges: Interest, Rent for Leased Roads and Other Charges.....	\$37,431,999.48 32,893,024.36	\$7,674,188.41 * 45,695.35
Net Income After Depreciation.....	\$4,538,975.12	\$7,719,883.76

* Denotes Decrease.

Review of Operations

Operating revenues increased \$27,149,416.98, or 19.14%, over 1935. Freight revenue increased \$25,030,467.69, or 20.39%, while revenue tons increased 23.38%. Passenger revenue increased \$1,293,928.99, or 13.08%, and the passenger miles increased 20.42%. The increase in passenger traffic is due in part to the increase in business activity and to reduction in fares on June 1, 1936. Other revenues, including mail and express, increased \$825,020.30, or 9.00%.

Operating expenses increased \$18,046,342.48, or 17.10%, over 1935. Total maintenance expenses increased \$10,781,268.45, or 25.27%, of which \$3,340,164.60 was for maintenance of way and structures and \$7,441,103.85 for maintenance of equipment. The maintenance of equipment expenses include depreciation charges of \$7,363,115.87, an increase of \$162,602.53 over 1935. Transportation expenses increased \$6,927,170.90, or 13.77%. The transportation ratio was 33.86% of operating revenues, as compared with 35.46% in 1935. The total operating ratio was 73.14%, compared with 74.42% in 1935.

Net Income

Net operating revenue increased \$9,103,074.50, while taxes, equipment and joint facility rents increased \$3,102,752.63, resulting in an increase in Net Railway Operating Income of \$6,000,321.87. Other income, including rents, dividends and interest, after deducting miscellaneous charges, reflects an increase over 1935 of \$1,673,866.54, while fixed charges decreased \$45,695.35. The net income after payment of interest and other fixed charges, aggregating \$32,893,024.36, was \$4,538,975.12, an increase over 1935 of \$7,719,883.76.

Taxes

The total taxes accrued as a charge to income in 1936 was \$10,495,868.31, an increase over 1935 of \$2,976,545.14. Of the total, \$2,135,651.02 was due to the Excise Tax, account of the Railroad Retirement Act of 1935, effective March 1, 1936, and \$725,246.74 was for the unemployment compensation feature of the Social Security Act, effective January 1, 1936.

Taxes accrued for 1936 absorbed 23.1 cents of each dollar of net operating revenue and was equal to \$3.33 per share of the total outstanding capital stock of the Company.

Balance Sheet

The balance sheet at December 31, 1936, indicated total property (less accrued depreciation) and other investments, of \$1,079,956,632, current assets of \$33,822,073 as against current liabilities of \$27,409,462, and deferred liabilities, inter-company accounts, etc., net, of \$16,418,931. The total interest-bearing debt outstanding was \$678,664,643 (a decrease of \$9,029,272 compared with preceding year). The outstanding capital stock was \$315,158,485, and corporate surplus \$76,127,184.

Emergency Increase in Freight Rates

Emergency increase in freight rates authorized by the Interstate Commerce Commission effective April 18, 1935, terminated December 31, 1936. During 1936 between \$6,000,000 and \$7,000,000 were realized by the Company from the emergency increase. As the reasons which justified the "Emergency Charges" are continuing with added emphasis as to cost of material, it is hoped that the Commission will give sympathetic consideration to the petition of the railroads now pending for certain increases and adjustment of freight rates which will aid in meeting present basis of costs without imposing undue and inequitable burdens on commerce and industry, or without interfering with the flow of traffic.

Pick-Up and Delivery Service

To facilitate the handling of less-than-carload traffic, a system of store-door collection and delivery was inaugurated November 16, 1936, to apply to shipments paying not less than forty-five cents per 100 pounds.

Shareholders

At the close of 1936 there were 40,861 registered holders of the Company's capital stock of both classes, with an average holding of 77 shares. The continued co-operation of shareholders in the use of the Company's facilities and in the solicitation of the business of others for transportation over its lines is earnestly desired and greatly appreciated.

The President and Board of Directors record their appreciation of the loyal support and efficient co-operation of the officers and employees in the conduct of the Company's business throughout the year.

DANIEL WILLARD, President.

Operating Revenues and Operating Expenses of Class I Steam Railways

Compiled from 138 Monthly Reports of Revenues and Expenses Representing 142 Class I Steam Railways
FOR THE MONTH OF MARCH, 1937 AND 1936

Item	United States		Eastern District		Southern District		Western District	
	1937	1936	1937	1936	1937	1936	1937	1936
Miles of road operated at close of month.....	236,156	236,840	58,392	58,627	44,798	44,949	132,966	133,264
Revenues:								
Freight	\$313,880,990	\$251,779,322	\$138,137,698	\$105,218,259	\$65,790,416	\$51,932,887	\$109,952,876	\$94,628,176
Passenger	a 34,952,341	b 30,515,811	18,808,709	16,958,856	6,137,721	5,188,877	10,005,911	8,368,078
Mail	8,247,905	7,672,726	3,189,023	2,910,905	1,493,972	1,397,228	3,564,910	3,364,593
Express	6,061,949	5,016,596	2,599,278	2,001,530	1,282,025	1,243,736	2,180,646	1,771,330
All other transportation...	7,514,716	6,693,696	3,853,000	3,508,282	876,354	701,568	2,785,362	2,483,846
Incidental	6,415,271	5,920,199	3,297,522	3,287,472	1,119,253	1,017,802	1,998,496	1,614,925
Joint facility—Cr.	925,900	885,488	327,034	278,699	207,855	172,194	391,011	434,595
Joint facility—Dr.	186,277	225,660	53,704	50,998	24,024	22,248	108,549	152,414
Railway operating revenues	377,812,795	308,258,178	170,158,560	134,113,005	76,883,572	61,632,044	130,770,663	112,513,129
Expenses:								
Maintenance of way and structures	37,583,007	34,177,660	15,227,316	13,968,884	7,275,524	6,483,058	15,080,167	13,725,718
Maintenance of equipment.	72,818,015	64,153,449	33,603,356	28,963,237	12,819,321	11,875,820	26,395,338	23,314,392
Traffic	8,584,534	7,980,836	3,147,073	2,950,726	1,668,737	1,607,273	3,768,724	3,422,837
Transportation	130,514,029	114,654,393	59,526,737	52,809,138	22,586,767	19,448,006	48,401,103	42,397,249
Miscellaneous operations ..	13,300,032	2,725,854	1,453,671	1,230,347	543,477	452,527	1,302,884	1,042,980
General	13,776,074	13,097,486	5,972,305	5,766,530	2,410,154	2,232,200	5,393,615	5,098,756
Transportation for investment—Cr.	304,503	243,072	35,151	29,717	39,262	23,112	230,090	190,243
Railway operating expenses	266,271,766	236,546,606	118,895,307	105,659,145	47,264,718	42,075,772	100,111,741	88,811,689
Net revenue from railway operations	111,541,029	71,711,572	51,263,253	28,453,860	29,618,854	19,556,272	30,658,922	23,701,440
Railway tax accruals.....	31,581,791	25,888,925	13,582,566	10,608,081	7,133,577	5,251,548	10,865,648	10,029,296
Railway operating income	79,959,238	45,822,647	37,680,687	17,845,779	22,485,277	14,304,724	19,793,274	13,672,144
Equipment rents—Dr. balance	7,464,129	7,552,567	3,146,622	3,574,860	604,475	185,577	3,713,032	3,792,130
Joint facility rent—Dr. balance	3,115,781	3,117,605	1,807,529	1,760,114	293,347	312,871	1,014,905	1,044,620
Net railway operating income	c 69,379,328	d 35,152,475	32,726,536	12,510,805	21,587,455	13,806,276	15,065,337	8,835,394
Ratio of expenses to revenues (per cent)	70.48	76.74	69.87	78.78	61.48	68.27	76.56	78.93
Depreciation included in operating expenses	16,286,887	16,220,724	7,233,409	7,092,306	3,122,957	3,201,433	5,930,521	5,926,985
Total maintenance before depreciation	94,114,135	82,110,385	41,597,263	35,839,815	16,971,888	15,157,445	35,544,984	31,113,125
Net railway operating income before depreciation ..	85,666,215	51,373,199	39,959,945	19,603,111	24,710,412	17,007,709	20,995,858	14,762,379

FOR THREE MONTHS ENDED WITH MARCH, 1937 AND 1936

Average number of miles operated	236,134	236,848	58,400	58,635	44,805	44,950	132,929	133,263
Revenues:								
Freight	\$846,698,679	\$738,023,784	\$371,617,302	\$322,398,178	\$170,797,762	\$152,467,899	\$304,283,615	\$263,157,707
Passenger	e 105,409,114	f 96,520,098	56,936,677	54,979,265	17,972,002	15,552,334	30,500,435	25,988,499
Mail	23,513,334	22,616,007	9,003,253	8,640,394	4,170,422	4,090,534	10,339,659	9,885,079
Express	13,099,703	11,648,580	5,321,180	4,431,577	3,106,169	2,875,439	4,672,354	4,341,564
All other transportation...	21,203,267	19,771,619	10,817,523	10,341,193	2,290,047	2,045,321	8,095,697	7,385,105
Incidental	19,331,513	17,168,440	10,005,098	9,498,386	3,246,027	2,840,504	6,080,388	4,829,550
Joint facility—Cr.	2,727,669	2,685,000	924,382	839,597	572,477	534,599	1,230,810	1,310,804
Joint facility—Dr.	559,081	686,700	167,816	151,561	63,742	61,741	327,523	473,398
Railway operating revenues	1,031,424,198	907,746,828	464,457,599	410,977,029	202,091,164	180,344,889	364,875,435	316,424,910
Expenses:								
Maintenance of way and structures	104,934,329	96,994,943	43,476,392	39,874,343	21,372,826	19,220,132	40,085,111	37,900,468
Maintenance of equipment.	205,580,778	188,325,794	95,013,053	86,361,277	36,317,661	34,527,313	74,250,064	67,437,204
Traffic	25,547,439	23,847,438	9,390,348	8,812,277	5,051,863	4,883,069	11,105,228	10,152,092
Transportation	378,247,439	348,072,460	170,452,615	161,797,967	63,524,131	58,633,649	144,270,693	127,640,844
Miscellaneous operations ..	9,988,636	8,458,033	4,434,879	3,989,893	1,602,038	1,286,472	3,951,719	3,181,668
General	40,491,291	39,083,373	17,645,218	17,182,557	7,008,468	6,675,088	15,837,605	15,225,728
Transportation for investment—Cr.	707,532	618,931	126,773	96,871	123,375	59,424	457,384	462,636
Railway operating expenses	764,082,380	704,163,110	340,285,732	317,921,443	134,753,612	125,166,299	289,043,036	261,075,368
Net revenue from railway operations	267,341,818	203,583,718	124,171,867	93,055,586	67,337,552	55,178,590	75,832,399	55,349,542
Railway tax accruals.....	88,917,811	68,760,721	37,448,896	27,915,605	19,790,606	14,868,069	31,678,309	25,977,047
Railway operating income	178,424,007	134,822,997	86,722,971	65,139,981	47,546,946	40,310,521	44,154,090	29,372,495
Equipment rents—Dr. balance	22,925,659	21,189,513	9,851,460	10,388,142	1,725,902	582,912	11,348,297	10,218,459
Joint facility rent—Dr. balance	9,323,702	9,190,136	5,289,727	5,176,658	895,508	948,134	3,138,467	3,065,344
Net railway operating income	g 146,174,646	h 104,443,348	71,581,784	49,575,181	44,925,536	38,779,475	29,667,326	16,088,692
Ratio of expenses to revenues (per cent)	74.08	77.57	73.27	77.36	66.68	69.40	79.22	82.51
Depreciation included in operating expenses	48,595,742	48,384,843	21,426,689	21,008,789	9,373,023	9,604,962	17,796,030	17,771,092
Total maintenance before depreciation	261,919,365	236,935,894	117,062,756	105,226,831	48,317,464	44,142,483	96,539,145	87,566,580
Net railway operating income before depreciation ..	194,770,388	152,828,191	93,008,473	70,583,970	54,298,559	48,384,437	47,463,356	33,859,784

a Includes \$368 sleeping and parlor car surcharge.

b Includes \$747,665 sleeping and parlor car surcharge.

c Includes charges to Railway Tax Accruals in the total amount of \$8,108,015, itemized as follows: \$3,291,834 for taxes under the requirements of the Social Security Act of 1935, and \$4,816,181 under the requirements of an Act approved August 29, 1935, levying an excise tax upon carriers and an income tax upon their employees, and for other purposes (Public No. 400, 74th Congress).

d Includes charges to Railway Tax Accruals in the total amount of \$5,315,678, itemized as follows: \$1,451,574 for taxes under the requirements of the Social Security Act of 1935, and \$3,864,104 under the requirements of an Act approved August 29, 1935, levying an excise tax upon carriers and an income tax upon their employees, and for other purposes (Public No. 400, 74th Congress).

e Includes \$7,070 sleeping and parlor car surcharge.

f Includes \$2,525,907 sleeping and parlor car surcharge.

g Includes charges to Railway Tax Accruals in the total amount of \$23,033,601, itemized as follows: \$9,490,055 for taxes under the requirements of the Social Security Act of 1935, and \$13,543,546 under the requirements of an Act approved August 29, 1935, levying an excise tax upon carriers and an income tax upon their employees, and for other purposes (Public No. 400, 74th Congress).

h Includes charges to Railway Tax Accruals in the total amount of \$8,308,755, itemized as follows: \$4,293,923 for taxes under the requirements of the Social Security Act of 1935, and \$4,014,832 under the requirements of an Act approved August 29, 1935, levying an excise tax upon carriers and an income tax upon their employees, and for other purposes (Public No. 400, 74th Congress).

Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to revision.

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